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APPENDIX E

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range Risk Assessment

HELSTF Sites, White Sands Missile Range, New Mexico

~~July 27, 2009~~June 2, 2010

ARCADIS

Rebecca W. Heslep
Human Health Risk Assessment Task Manager

Suzanne J. Young
Ecological Risk Assessment Task Manager

Christopher H. Day
Risk Assessment Project Manager

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range Risk Assessment
HELSTF Sites, White Sands Missile Range, New Mexico

Prepared for:
Unites States ARMY

Prepared by:
ARCADIS
~~11490 Westheimer~~
~~Suite 600~~2929 Briarpark Drive
Suite 300
Houston
Texas ~~77077~~77042
Tel ~~281.497.6900~~713.953.4800
Fax ~~2~~713.977.4620~~81.496.2936~~

Our Ref.:
GP08WSMR

Date:
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Acronyms and Abbreviations

API	American Petroleum Institute
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
BAF	Bioaccumulation Factor
BERA	Baseline Ecological Risk Assessment
BTEX	Benzene, toluene, ethylbenzene, and xylene
bgs	Below Ground Surface
BW	Body Weight
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm^2	square centimeters
COPC	Constituents of Potential Concern
COPEC	Constituents of Potential Environmental Concern
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
dL	Deciliter
DNA	Deoxyribonucleic acid
Eco-RBCA	Ecological Risk-Based Corrective Action
EcoSSL	Ecological Soil Screening Level
ELCR	Excess Lifetime Cancer Risk
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
ESL	Ecological Screening Level
FOD	Frequency of Detection
ft	Feet
HCF	HELSTF Cleaning Facility
HEAST	Health Effects Assessment Summary Tables
HELSTF	High Energy Laser Systems Test Facility
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IRIS	Integrated Risk Information System
kg	Kilogram
km^2	Square Kilometer
K_{oc}	Organic Carbon Partition Coefficient
K_{ow}	Octanol-Water Partition Coefficient
L	Liter
LDEQ	Louisiana Department of Environmental Quality
LOAEL	Lowest Observed Adverse Effect Level
LSTC	Laser System Test Center
MADEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level

MDEQ	Mississippi Department of Environmental Quality
MPCA	Minnesota Pollution Control Agency
m^3	Cubic Meter
µg	Microgram
mg	Milligram
NCEA	National Center for Environmental Assessment
NOAEL	No Observed Adverse Effect Level
NMDFG	New Mexico Department of Fish and Game
NMED	New Mexico Environmental Department
OSWER	Office of Solid Waste and Emergency Response
PADEP	Pennsylvania Department of Environmental Protection
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCDD	Polychlorinated dibenzo-p-dioxins
PCDF	Polychlorinated dibenzofurans
PEF	Particulate Emission Factor
PPRTV	Provisional Peer Reviewed Toxicity Values
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RAGS	Risk Assessment Guidance for Superfund
RBCA	Risk-Based Corrective Action
RfD	Reference Dose
RFI	RCRA Facility Investigation
RGW	Regional groundwater
RL	Reporting Limit
RSL	Regional Screening Levels
RTRP	Reinforced Thermosetting Resin Pipe
SLERA	Screening-Level Ecological Risk Assessment
SMDP	Scientific Management Decision Point
SSL	Soil Screening Level
SQL	Sample Quantitation Limit
SSW	Saturated vadoze zone soil water
SVOC	Semi-volatile organic compound
SWMU	Solid Waste Management Unit
TCA	Test Cell Area
TCEQ	Texas Commission on Environmental Quality
TPH	Total Petroleum Hydrocarbons
TRV	Toxicity Reference Value
95UCL	95% Upper Confidence Limit of the Mean
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VF	Volatilization Factor
VOC	Volatile Organic Compound
WQCC	Water Quality Control Commission
WSMR	White Sands Missile Range

ARCADIS

1. Introduction

The purpose of this risk assessment is to evaluate current and reasonably anticipated future risks to human health and the environment associated with exposure to constituents detected in environmental media at the High Energy Laser Systems Test Facility (HELSTF) at the White Sands Missile Range (WSMR).

ARCADIS prepared this human health and ecological risk assessment appendix to summarize the methodology and results of the risk assessments performed for HELSTF. This appendix is divided into several sections and draws heavily on the information provided in the main body of the RCRA Facility Investigation (RFI) text. As such, it is not designed to be a stand-alone document. Rather, it provides the methodologies used to evaluate potential exposures to human health and ecological receptors followed by a concise assessment of each of the solid waste management units (SWMUs) identified at the HELSTF. The sites evaluated in this report are the following:

- SWMU 25
- SWMU~~s~~ 27~~ to 30~~
- SWMUs 31 and 32
- SWMUs 33 and 34
- SWMUs 38 and 39
- SWMU 141
- SWMU 142
- SWMU 143
- SWMU 144
- SWMU 145
- SWMU 146
- SWMU 147
- SWMU 148
- SWMU 149
- SWMU 150
- SWMUs 151 and 152
- SWMU 154

In addition to these sites, the risk assessment evaluates potential exposure to facility-wide groundwater in the regional aquifer.

The purpose of the risk assessments is to evaluate the potential current and future risks to both human and ecological receptors at the sites from exposure to constituents detected in soil and groundwater at the HELSTF. The risk assessments were conducted in a manner consistent with current NMED guidance and the EPA's Risk Assessment Guidance for Superfund (RAGS), and in compliance with the Resource Conservation and Recovery Act (RCRA).

This human health and ecological risk assessment is organized as follows:

Section 1 – Introduction. This section provides background information related to the risk assessment.

Section 2 – Methods and Procedures. This section provides the rationale for the methods and procedures used during the evaluation of the data collected during the various phases of environmental investigation.

Sections 3 through 20 – These sections summarize the HHRA and the ERA for each of the sites and for facility-wide groundwater. Each section contains a site description, data set characterization, screening assessment, and conclusions and recommendations.

Section 21 – Conclusions and Recommendations. This section presents a summary of the conclusions drawn from the HHRAs and ERAs.

Section 22 – References

2. Risk Assessment Methods and Procedures

This section discusses the methods and procedures utilized to prepare the HHRA and ERA at each of the SWMUs (i.e., sites) and site-wide groundwater at the HELSTF.

2.1 Risk Assessment Data Sets

The data used for the HHRAs and ERAs consist of the same data set used for the Revised Phase III RFI Report (ARCADIS, 2009). The data are comprised of soil data, saturated vadose zone soil water data, and regional aquifer data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993 and 1994), and the Phase III RFI (WSMR, 2008). A more detailed description of the data is included in the Revised Phase III RFI Report (ARCADIS, 2009).

The data available for each site were evaluated following United States Environmental Protection Agency (USEPA) guidance for risk assessments (USEPA, 1989; 1992; 2002a). The data evaluation guidelines are summarized as follows:

- All soil sample types (i.e., hand auger, continuous core, direct-push technique) were considered usable for the risk assessment.
- Analytical results from soil samples collected from different depths at the same sampling location during the same sampling event were evaluated as independent samples.
- Constituents that were not detected in a medium and have sample quantitation limits (SQLs) below screening levels were not included in the data evaluation for that medium. Constituents that were not detected and have SQLs above screening levels were further evaluated.
- Analytical results reported as detected or estimated values were considered to be present at the reported value. Analytical results that are “U” or “UB” qualified were considered non-detect. Analytical results rejected during the data validation process (i.e., “R” qualified), or where the chemical identity is uncertain (i.e., “N” qualified) were not qualitatively or quantitatively evaluated.
- For duplicate samples (or constituents measured using two methods on the same sample [e.g., naphthalene via USEPA Methods 8260 and 8270]), the

result to be used in the risk assessments was selected as follows: (1) if both samples reported positive detects, the higher measured analytical concentration was used, (2) if only one result was a positive detect, that concentration was used, or (3) if both samples reported non-detects, the lower SQL was used as the proxy concentration. The lower SQL was used because it is not reasonable to use the higher SQL when the duplicate analysis for the sample indicated that the constituent was not present at the lower SQL.

Data summary tables prepared for each site present a list of analyzed chemicals, the frequency of detection, the range of concentrations detected (i.e., minimum and maximum), the range of sample quantitation limits, the location of the maximum detected concentration, the arithmetic average, and the upper confidence limit (UCL). COPC selection tables prepared for each site present the risk-based screening level, whether or not the constituent was selected as a constituent of potential concern (COPC), and the rationale for inclusion or exclusion. Determination as a COPC also included a background evaluation for inorganics (Appendix F) where concentrations were identified as either within site-specific background concentrations or outside the range of site-specific background concentrations (Table E.2-1). The background evaluation and risk-based screening levels are identified in the following section.

As presented in the data set tables for each site, results for Total Petroleum Hydrocarbons (TPH) do exist for some sites. However fractional hydrocarbon data were not reported and screening levels are not available. Therefore, risks to human health and the environment associated with BTEX (benzene, toluene, ethylbenzene, and xylene) compounds were used as an indicator for the TPH COPCs. This evaluation is consistent with Risk-Based Corrective Action (RBCA) guidelines (ASTM, 2002a,b).

Acetone and methylene chloride are common laboratory contaminants and are often reported in soil and groundwater data as a result of cross-contamination that occurs in the laboratory or during field decontamination. Acetone is used as a solvent in the laboratory for rinsing glassware and may cause airborne or residual cross contamination. It can also be found in isopropanol which can be used as a solvent rinse for field equipment. Methylene chloride is used as an extraction solvent for semivolatile organic compounds (SVOCs) in the laboratory. According to the USEPA's Functional Guidelines for Organics, these constituents can be eliminated from consideration when their concentration is less than 10 times the concentration found in associated laboratory blanks. A number of soil samples collected during the Phase I RFI in 1992 reported acetone and/or methylene chloride. Because of the age of the

data, the laboratory blanks associated with these data were not available for review. Equipment and field blanks were not included in the data set that is available. Quality assurance data were not as stringently enforced during the timeframe that these samples were analyzed. Therefore, these detections were eliminated from further consideration in cases where there was no evidence that these constituents were associated with historical operations at the SWMU and the detection was less than 10 times the reported detection limit for the individual sample.

2.1.1 Evaluation of Vertical and Spatial Distribution Data

The environmental data collected throughout the multiple phases of investigation were grouped by site and medium of interest (e.g., soil and saturated vadose zone soil water) and then evaluated to produce risk assessment data sets. Deep regional groundwater was evaluated on a facility-wide basis, rather than site-by-site. The deep regional groundwater is mobile and flows beneath HELSTF and is therefore better evaluated on a holistic, facility-wide basis.

Soil data were further subdivided by sample depth interval based on the exposure pathways identified at the HELSTF facility. In brief, data were categorized as follows:

- Surface soil data, including soil samples collected from depths of 0 to 2 ft bgs, were used to evaluate potential exposure of human (current/future site worker; hypothetical future resident) and ecological receptors;
- Surface and subsurface soil data (0 to 10 ft bgs) were used to evaluate potential exposure of human (future construction worker) and ecological receptors that could be exposed to subsurface soil (e.g., burrowing wildlife);
- Total soil data (vadose zone) were used to evaluate potential exposure of human receptors through the vapor intrusion exposure pathway;
- Saturated vadose zone soil water data were assessed on a site by site basis for evaluating potential human exposure (i.e., potential for vapor intrusion), and
- Deep regional aquifer data were assessed as a single data set for evaluating potential human exposure.

Based on the water level data in the vicinity of each site at the HELSTF, the following estimated vadose zone thicknesses were used to evaluate the total soil data:

SWMU	Vadose Zone Thickness (feet)	Note
25	75	Depth to RGW
27-~~30~~	19	Depth to SSW
31-32	75	Depth to RGW
33-34	19	Depth to SSW
38-39	40	Depth to SSW
141	75	Depth to RGW
142	43	Depth to SSW
143	21	Depth to SSW
144	38	Depth to SSW
145	43	Depth to SSW
146	21	Depth to SSW
147	43	Depth to SSW
148	19	Depth to SSW
149	20	Depth to SSW
150	75	Depth to RGW
151-152	19	Depth to SSW
154	42	Depth to SSW

RGW – Regional groundwater

SSW – Saturated vadose zone soil water

2.2 Human Health Risk Assessment Methods and Procedures

The purpose of the HHRAs is to evaluate the potential current and future potential risks and hazards to human health associated with constituents detected in surface and subsurface soil and groundwater samples collected at the HELSTF sites. Methods and parameters used in the HHRA were in compliance with New Mexico Environmental Department (NMED) and USEPA guidance for risk assessments (NMED, ~~2006~~2009a;

USEPA, 2000a; 1997a; 1992; 1991a; 1989). The HHRA discussion is organized into the following components:

- **Constituent Characterization**: presents the results of the risk-based constituent screening process, and identifies the most prevalent and toxic constituents to be carried through the HHRA – the constituents of potential concern (COPCs).
- **Toxicity Assessment**: identifies and presents summaries of the general toxicological properties of the COPCs.
- **Exposure Assessment**: identifies the potential human exposure scenarios relevant to the risk assessment.
- **Risk Characterization**: presents the estimated human health risks associated with the identified COPCs and the relevant human exposure scenarios.
- **Uncertainty Analysis**: discusses the inherent uncertainties in the risk assessment process.
- **Summary and Conclusions**: summarizes the results of the HHRA.

2.2.1 Constituent Characterization

This section discusses the risk-based constituent screening process and the methods used to select COPCs for the HHRAs.

The first step of the HHRA process consists of compiling and evaluating site investigation data to select the COPCs. The selection of COPCs was based primarily on the magnitude of the measured concentrations in the relevant environmental medium. If the maximum detected concentration exceeded the screening level, then the constituent was selected as a COPC. Detected constituents without available screening levels also were selected as COPCs.

COPCs in soil were identified for each of the sites by comparing maximum detected concentrations to the NMED (~~2006~~2009a,b) Soil Screening Levels (SSLs) for residential soil, industrial soil, and construction worker soil (Table E.2-2). In the event that the NMED guidance does not have a screening level for a given constituent, the USEPA Regional Screening Levels (SLs) (USEPA, ~~2008a~~2009a) for residential soil

and industrial soil were used. The NMED SSLs are based on a carcinogenic target risk level of 1 x 10^{-5} and non-carcinogenic target hazard quotient of 1. The USEPA (~~2008a~~2009a) SLs are based on a carcinogenic target risk level of 1 x 10^{-6} and a non-carcinogenic target hazard quotient of 1. To be consistent with NMED guidance and target risk level of 1 x 10^{-5}, the carcinogenic USEPA (~~2008a~~2009a) SLs were adjusted upward by a factor of 10. The data screening tables for soil included in each site-specific HHRA section present residential, industrial, and construction worker screening levels. This was done because the current land use on-site includes industrial use and future hypothetical land use on-site may include construction activity, as well as residential use per the unrestricted land use scenario.

The focus of the site-specific risk assessments are on those constituents that are related to activities at specific source areas at the HELSTF sites. Inorganic constituents may be present at a site because of naturally occurring sources. As a result, the site-specific data were compared to the site-specific background data as presented in the Background Evaluation (Table E.2-1 and Appendix F of the Revised Phase III RFI Report). Inorganic constituents present at or below background levels were excluded from further evaluation in the risk assessment.

For saturated vadose zone soil water at the HELSTF sites, concentrations detected in the saturated vadose zone soil water were compared to vapor intrusion screening levels (USEPA, 2002a) (Table E.2-3). Saturated vadose zone soil water at the HELSTF is not currently used for potable water, nor will it be used as such in the future. Therefore, screening based on potable use was not included in the HHRAs.

Constituent concentrations observed in deep regional groundwater were compared to screening levels developed assuming ingestion of water under a future residential exposure scenario (Table E.2-4). Constituents present at concentrations greater than their screening level were identified as COPCs for deep regional groundwater. The hierarchy for screening the deep regional groundwater data set is presented below:

1. Use the lowest value of the USEPA Maximum Contaminant Level (MCL) (USEPA, 2003a) or the NMED Water Quality Control Commission (WQCC) standards (NMED WQCC, 1995).

2. If an analyte does not have an USEPA MCL or NMED standard, the NMED tap water screening level (NMED, ~~2006~~2009b) was used.

3. If an analyte does not have an NMED tap water screening level, the USEPA regional tap water screening level was used (for carcinogens, the USEPA tap water screening level was adjusted upward by a factor of 10) (USEPA, ~~2008a~~2009a).

Non-detected constituents are also evaluated with respect to screening levels. The sample quantitation limits (SQLs) or reporting limits (RLs) of non-detected constituents were compared with the appropriate screening levels to determine if those constituents should also be further evaluated as indicated in the NMED (~~2006~~2009a) guidance.

In summary, the selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~[~~represented by the maximum reported concentration as an initial step)~~]~~, and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed (as per NMED [2006] SSL guidance): take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. The constituents were separated by whether they were carcinogenic or noncarcinogenic compounds. If the total ratio is greater than 1 when the maximum constituent concentrations are used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

2.2.2 Toxicity Assessment

The toxicity assessment discusses the two general categories of toxic effects (non-carcinogenic and carcinogenic) and constituent-specific toxicity values used to calculate potential risks for these two types of toxic effects. Toxicity values for potential non-carcinogenic and carcinogenic effects are determined from available databases. For the HHRA, toxicity values were obtained from the following sources in order of priority as recommended by USEPA (2003b):

- Tier 1: USEPA's Integrated Risk Information System (IRIS) (USEPA, 2009b);
- Tier 2: National Center for Environmental Assessment (NCEA) Provisional Peer Reviewed Toxicity Values (PPRTV); and
- Tier 3: Additional USEPA and non-USEPA sources including the Agency for Toxic Substances and Disease Registry (ATSDR), the USEPA (2004a,b), and USEPA's Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997b).

2.2.2.1 Toxicity Values for Non-carcinogenic Constituents

For many non-carcinogenic effects, protective mechanisms must be overcome before an adverse effect is manifested. Therefore, a finite dose (threshold), below which adverse effects will not occur, exists for non-carcinogens. Depending on the dose, a single compound might elicit several adverse effects within a given exposure route or during the duration of exposure. The susceptibility of the individual may also influence the adverse effect caused by various constituents. Constituents may exhibit their toxic effects at the point of application or contact (local effect) or at other sites (systemic effects) after they have been distributed throughout the body. Most constituents can produce more than one type of toxic effect, depending on the dose and the susceptibility of the exposed individual or receptor. The goal of toxicity studies for application in risk assessment is to identify the most sensitive toxic effect and the exposure levels that are expected to be safe. The potential for non-carcinogenic effects is estimated by comparing a calculated exposure dose with a reference dose (RfD) for each individual constituent. The RfD represents a daily exposure level that is designed to be protective of human health, even for sensitive individuals or subpopulations.

For a given constituent, the dose or concentration that elicits no adverse effect when evaluating the most sensitive response in the most sensitive species is referred to as the "no observed adverse effect level" (NOAEL). The NOAEL is used to establish non-cancer toxicity values (called RfDs). The RfD represents a daily exposure level that is not expected to cause adverse non-carcinogenic health effects. Chronic RfDs are used to assess long-term exposures ranging from 7 years to a lifetime. Subchronic RfDs are used to evaluate the potential for adverse health effects associated with exposure to constituents over a period of 2 weeks to 7 years. HEAST was the primary source for subchronic RfDs. Where subchronic RfDs were not available from HEAST, chronic RfDs were used. Where the chronic to subchronic uncertainty factor had been reported, the subchronic to chronic uncertainty factor was removed from the chronic RfD and the subchronic RfD was used in the evaluation. If the subchronic to chronic uncertainty factor was not available, the chronic RfDs were used.

Table E.2-5 presents the target sites associated with the non-carcinogenic toxicity values for each constituent varying with the exposure route. Table E.2-6 presents the RfDs used to assess oral and dermal exposure, and Table E.2-7 presents the RfDs used to assess inhalation exposure. USEPA confidence values and uncertainty factors associated with the RfDs also are listed (USEPA, ~~2008a~~2009a). The uncertainty factor represents areas of uncertainty inherent in the extrapolation from the available data. The confidence levels (low, medium, high) assess the degree of confidence in the extrapolation of available data.

2.2.2.2 Toxicity Values for Carcinogenic Constituents

Cancer induction in humans and animals due to exposure to carcinogenic constituents proceeds through a complex series of reactions and processes. Carcinogenic constituents may produce tumors at the point of application or contact, or they may produce tumors in other tissues after they have been distributed throughout the body. Some constituents are associated only with one or two tumor types while others may cause tumors at many different sites.

Constituents are classified as known, probable, or possible human carcinogens based on a USEPA weight-of-evidence scheme in which they are systematically evaluated for their ability to cause cancer in humans or laboratory animals. The USEPA classification scheme (USEPA, 1989) contains five classes based on the weight of available evidence, as follows:

A known human carcinogen;

B probable human carcinogen:

B1 probable human carcinogen—limited evidence in humans;

B2 probable human carcinogen—sufficient evidence in animals and inadequate data in humans;

C possible human carcinogen—limited evidence in animals;

D inadequate evidence to classify; and

E evidence of non-carcinogenicity.

Constituents in Classes A, B1, and B2 generally are evaluated as carcinogens in risk assessments; however, Class C carcinogens may be evaluated on a case-by-case basis (USEPA, 1989).

For most carcinogens, USEPA (2005a) uses an extremely conservative approach in which it is assumed that any level of exposure could cause cancer. Based on this assumption, USEPA extrapolates from laboratory animal data using a mathematical model known as the linear multi-stage model. This model plots a line through the zero point and, based on the slope of this dose-response line, assigns a risk level for increasingly smaller doses of a particular compound. The 95 percent upper confidence limit for the slope of this line, called the cancer slope factor (CSF), is used to calculate the probability of an effect associated with a given dose. USEPA's slope factors thus are determined by a methodology that is likely to overestimate real risk.

Tables E.2-8 and E.2-9 present the carcinogenic toxicity values for oral and dermal exposure and inhalation exposure (respectively) for the COPCs at the HELSTF. The carcinogenic toxicity value used in the calculation of potential cancer risks is the CSF, which is derived from the conservative assumption that any dose level has a possibility of causing cancer. The cumulative dose, regardless of the particular exposure period, determines the risk; therefore, separate CSFs are not derived for subchronic and chronic exposure periods.

2.2.2.3 Dermal Toxicity Values and Dermal Absorption

Whenever possible, route-specific toxicity values have been used; however, USEPA has not yet developed toxicity values for dermal exposures. For this reason, the oral toxicity values (RfD_o and CSF_o) and the oral absorption efficiency were used to derive adjusted toxicity values (RfD_a and CSF_a) (adjusted to the absorbed dose) for use in assessing dermal exposure (USEPA, 1989):

$$RfD_a = RfD_o \times \text{Oral Absorption Efficiency}$$

$$CSF_a = CSF_o / \text{Oral Absorption Efficiency}$$

The adjusted toxicity values represent the theoretical toxicity of the orally absorbed dose of the constituent. The USEPA (2004a) guidance recommends that the oral toxicity values for organic constituents should not be adjusted to assess dermal exposure (i.e., oral absorption efficiency = 1). Table E.2-6 presents the oral absorption efficiency values and the RfD_as used to assess risk for the dermal exposure route. Table E.2-8 presents the CSF_as. Uncertainty is associated with the adjusted toxicity values and with the dermal risks derived using these values due to the uncertainty in the oral toxicity values combined with the uncertainty in the oral absorption efficiency default and constituent-specific values. However, the calculated dermal risks are expected to be very conservative and, therefore, will overestimate human health risks.

Table E.2-10 presents the dermal absorption efficiencies for COPCs identified at the HELSTF. The dermal absorption efficiency is used to estimate dermal uptake from a soil matrix.

2.2.2.4 Toxicity of Lead

The USEPA identifies lead as a “probable human carcinogen” based on sufficient animal evidence but inadequate human evidence (USEPA, 2007a). However, the USEPA does not recommend evaluating lead cancer risk using a CSF (USEPA, 2003c). Instead, lead non-carcinogenic risks (identified as neurological effects) are evaluated by predicting blood-lead concentrations using toxicokinetic modeling. This is because there is a strong correlation between lead exposure and resulting blood lead levels.

2.2.3 Exposure Assessment

The purpose of the exposure assessment is to evaluate the ways receptors might be exposed to constituents at a site. Without exposure there is no risk; thus, the exposure assessment is a key element of the risk assessment. The exposure assessment includes characterization of the physical environment, identification of exposure pathways (including migration pathways, exposure points, and exposure routes), and identification of potentially exposed individuals and populations.

2.2.3.1 Receptors and Exposure Pathways

Exposure pathways were identified based on the site characterization information and the fate and transport properties of the constituents detected on-site to identify likely

points where human receptors may come in contact with affected media under current or potential future conditions at the HELSTF sites. The principal pathways by which exposure could occur were identified for human receptors.

An exposure pathway consists of the following four elements: (1) a source and mechanism of constituent release to the environment, (2) a retention or transport medium for the released constituent, (3) a point of potential contact by the receptor with the impacted medium (the exposure point), and (4) a route of exposure to the receptor at the exposure point (e.g., ingestion, inhalation, or dermal contact).

2.2.3.1.1 Conceptual Site Model

The conceptual site model (CSM) provides the risk assessment framework. It characterizes the primary and secondary potential sources and release mechanisms and identifies the primary exposure points, receptors, and exposure routes. Exposure points are places or “points” where exposure could potentially occur, and exposure routes include the basic pathways through which COPCs may potentially be taken up by the receptor. The potential exposure pathways for the HELSTF are presented in Figure 2-1.

2.2.3.1.2 Potential Receptors

This element of the exposure assessment identifies potential receptors present at the HELSTF sites. Not all of the receptors identified are appropriate for each site; the appropriate receptors for a given site are identified during the site-specific HHRA (Sections 3 through 21).

Land use at the HELSTF sites was evaluated based on information obtained during previous RFI phases and a site reconnaissance conducted on March 19, 2009; a number of potential land uses and receptors were identified. The receptors described below are the full suite of potential receptors for the HELSTF sites. Each site was evaluated during the site-specific HHRA based on its unique characteristics to identify the applicable site-specific receptors.

Access to the HELSTF and WSMR is restricted and military guards are posted at all entrances. This restriction limits the number of individuals that might come onto the installation. Although the HELSTF is a military facility, there are also civilian contractors

that work at the facility. It is expected that individuals working at the HELSTF would have exposure scenarios similar to the "typical" site worker considered by NMED and USEPA under default exposure conditions (NMED, 2009a~~6~~; USEPA, 1991a, 2002c). In addition, construction activities including utility work could occur at the sites. Therefore, construction/utility workers are identified as a potential receptor.

As discussed previously, the HELSTF facility is wholly contained within an operating military installation, and based on past, present, and anticipated future land use for the HELSTF, it is reasonable to assume that sites will remain in military use as opposed to other commercial or residential development. This logic is supported by the USEPA/ Office of Solid Waste and Emergency Response (OSWER) "Land Use Directive" (USEPA, 1995). Nevertheless, for purposes of conducting a comprehensive exposure assessment and in accordance with NMED guidance, it is assumed that a hypothetical future resident (child and adult) could be exposed to site-related COPCs in affected media at the sites. There are currently no points of exposure to groundwater at the WSMR installation, including the HELSTF sites, because all potable water for the installation is provided via a secure water supply system located approximately 7 miles from WSMR. Therefore, exposure to affected groundwater from a potable water well is not a complete exposure pathway under current conditions, and will only be evaluated as a hypothetical future scenario in which a water well is completed in the affected groundwater (i.e., deep regional groundwater).

The following receptors were identified for quantitative analysis at each site:

- Current/Future Site Worker;
- Future Construction/Utility Worker; and
- Hypothetical Future Adult and Child Resident.

2.2.3.2 Exposure Parameters

This element of the exposure assessment identifies potentially complete pathways of exposure (e.g., incidental ingestion, dermal contact, and inhalation of vapor and dust from soil) to site-related constituents in soil and groundwater by human receptors. The vapor intrusion pathway was considered, as appropriate, on a site-by-site basis for inclusion in the conceptual site model for a particular site. If any buildings or structures at a particular site are located above affected soil and/or groundwater containing

volatile organic compounds (VOCs), the site-specific HHRA evaluated the potential for vapor intrusion to occur under current and potential future conditions. Potential exposure pathways associated with each receptor are identified below.

Site-Worker

Workers accessing the HELSTF on a regular basis could be exposed to soils via incidental ingestion, dermal contact, inhalation of dust and volatiles. Inhalation of volatiles migrating to indoor air from subsurface soils is only applicable for a hypothetical future scenario in which a building is placed over affected soil or groundwater (perched or regional) containing VOCs.

As noted previously, there are currently no points of exposure to groundwater at the WSMR installation, including the HELSTF sites, because all potable water for the installation is provided via a secure water supply system located approximately 7 miles from WSMR. Therefore, exposure to affected groundwater from a water well is not a complete exposure pathway under current conditions, and would only be evaluated as a complete pathway under a hypothetical future scenario in which a water well is completed in the affected groundwater (i.e., deep regional groundwater).

The exposure factors and equations that are used to calculate the chronic daily intake for site workers are presented in Tables E.2-11 (soil, current and future land-use conditions) and E.2-12 (groundwater, future land-use conditions), respectively. These exposure factors are summarized as follows:

- Adult body weight of 70 kilograms (kg) (NMED, ~~2006~~2009a);
- Exposure duration of 25 years (NMED, ~~2006~~2009a);
- Exposure frequency of 225 days/year (NMED, ~~2006~~2009a);
- Incidental soil ingestion rate of 100 milligrams per day (mg/day) (NMED, ~~2006~~2009a);
- Exposed skin surface area for face, hands and forearms is 3,300 square centimeters (cm^2) (NMED, ~~2006~~2009a);
- Soil adherence factor of 0.2 milligrams per square centimeter (mg/cm^2) (NMED, ~~2006~~2009a);

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- ~~Inhalation rate for soil and groundwater is 2.5 cubic meters per hour (m^3/hr) (20 m^3/day) (NMED, 20062009a);~~

- The volatilization factor for soils is calculated based on site-specific information; and

- The volatilization factor for groundwater is 0.5 liters per cubic meter (L/m^3) (NMED, 200~~6~~9a).

Construction Worker

Construction workers may be present at HELSTF in the future to work on new construction or excavation activities; therefore, this exposure scenario was evaluated based on a hypothetical construction project. The NMED SSL guidance (NMED, ~~2006~~2009a) has a default excavation worker scenario for which the worker is assumed to be involved in a construction project that takes 1 year (250 working days) to complete. A construction worker may be exposed to COPCs in combined surface and subsurface soil (0 to 10 ft bgs) via incidental ingestion, dermal contact, and inhalation of VOCs and dust during excavation activities. Groundwater at the HELSTF is generally found at depths greater than 10 to 15 ft bgs. Since excavation work typically occurs within the top 10 feet of the soil column, it is expected that future excavation activities would not reach groundwater. Therefore, the potential for exposure to groundwater is unlikely and no exposure factors are presented herein. The exposure factors and equations that are used to calculate the subchronic daily intake for this potential receptor are presented in Table E.2-13 (soil, future land-use conditions). These exposure factors are summarized as follows:

- Adult body weight of 70 kg (NMED, ~~2006~~2009a);

- A incidental ingestion rate of soil of 330 mg/day (NMED, ~~2006~~2009a);

- Exposure duration of 1 year (NMED, ~~2006~~2009a);

- Exposure frequency of 250 days/year (NMED, ~~2006~~2009a);

- Exposed skin surface area for face, hands and forearms is 3,300 cm^2 (NMED, 2009a~~6~~);

- Soil adherence factor of 0.3 mg/cm^2 (NMED, 2009a~~6~~); and

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- ~~Inhalation rate of 2.5 m³/hour (20 m3/day) (NMED, 2006); and~~
- Exposure time of 8 hours/day (USEPA, 1989).

Future Adult Resident

As discussed previously, the HELSTF is wholly contained within an operating military installation, and based on past, present, and anticipated future land use for the HELSTF, it is reasonable to assume that sites will remain in military use as opposed to other commercial/industrial or residential development. This logic is supported by the USEPA/OSWER "Landuse Directive" (USEPA, 1995). Nevertheless, for purposes of conducting a comprehensive exposure assessment and in accordance with NMED guidance for the unrestricted future land use scenario, it is assumed that a hypothetical future resident (child and adult) could be exposed to site-related COPCs in affected media at the sites. Therefore, future residential exposure to soil (surface and subsurface) via incidental ingestion, dermal contact, and inhalation of vapors and/or particulates was evaluated.

There are currently no points of exposure to groundwater at the WSMR installation, including the HELSTF sites, because all potable water for the installation is provided via a secure water supply system located approximately 7 miles from WSMR. Therefore, exposure to affected groundwater from a water well is not a completed exposure pathway under current conditions, and will only be evaluated as a hypothetical future scenario in which a water well is completed in the affected groundwater (i.e., deep regional groundwater).

Residential exposure to groundwater was evaluated by assuming that the receptor could be exposed via ingestion, and dermal contact and inhalation of vapors while showering and/or bathing and during household uses (e.g., laundry, cooking, etc.). If this hypothetical future pathway is considered complete for a site, then any exposure to volatile COPCs in groundwater from future use of groundwater as a potable water supply was evaluated using the USEPA volatilization factor approach (USEPA, 1991b [Andelman volatilization constant]; NMED, 200~~6~~9a) which accounts for indoor vapor exposure from use of groundwater for clothes/dish washing, bathing/showering, cooking, etc. In addition, the potential for exposure to vapors migrating to indoor air from total soil and saturated vadose zone soil water was evaluated for the hypothetical future resident using the Screening-Level Johnson and Ettinger Model.

The exposure factors and equations that were used to calculate the chronic daily intake for future hypothetical adult resident direct exposure to soil and groundwater are presented in Tables E.2-14 and E.2-15, respectively. The adult exposure parameters are summarized as follows:

- Adult drinking water ingestion rate of 2 L/day (NMED, ~~2006~~2009a);
- Adult soil ingestion rate of 100 mg/day (NMED, ~~2006~~2009a);
- Exposure frequency of 350 days per year (NMED, ~~2006~~2009a);
- Exposure duration of 30 years (NMED, ~~2006~~2009a);
- Exposed skin surface area for whole body is 18,000 cm^2 for groundwater exposure via showering/bathing (USEPA, 2004a);
- Exposed skin surface area for face, forearms, hands, and lower legs is 5,700 cm^2 for soil exposure (NMED, ~~2006~~2009a);
- Soil adherence rate of 0.07 mg/cm^2 (NMED, ~~2006~~2009a);
- ~~Adult inhalation rate of 0.83 m3/hr (20 m3/day)(NMED, 2006);~~
- Volatilization factor of 0.5 L/m^3 for groundwater as potable supply (USEPA, 1991a; NMED, ~~2006~~2009a); and
- Body weight of 70 kg for an adult (NMED, ~~2006~~2009a).

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Because exposure factors are different for adults and children, potential cancer risks were calculated using age-adjusted factors consistent with USEPA *Risk Assessment Guidance for Superfund* (RAGS) Part B (USEPA, 1991b) and NMED guidance (~~2006~~2009a). Age-adjusted factors (for 0 to 30 year exposure period) include body weight, exposure duration, ingestion rates, and skin surface area. Age-adjusted residential exposure factors and equations for calculating carcinogenic effects via exposure to soil and groundwater are presented in Tables E.2-16 and E.2-17, respectively.

Future Child Resident

As discussed in the previous section, there are currently no points of exposure to groundwater at the WSMR installation, including the HELSTF sites, because all potable water for the installation is provided via a secure water supply system located approximately 7 miles from WSMR. Therefore, exposure to affected groundwater from a water well is not a completed exposure pathway under current conditions, and will only be evaluated as a hypothetical future scenario in which a water well is completed in the affected groundwater.

This type of future groundwater usage is assumed to be unrestricted and therefore, the child resident may be exposed to constituents in groundwater via ingestion, dermal contact while bathing and inhalation of vapors in indoor air. Under the unrestricted future land use assumption, child resident soil exposure via ingestion, dermal contact, and inhalation of vapors and/or particulates must also be evaluated. The exposure factors and equations that are used to calculate the noncancer chronic daily intake for future hypothetical child resident direct exposure to soil and groundwater are presented in Tables E.2-18 and E.2-19, respectively. The child exposure parameters are summarized as follows:

- A drinking water ingestion rate of 1 L/day (USEPA, 2008~~b~~a);
- Soil ingestion rate of 200 mg/day (NMED, ~~2006~~2009a);
- Exposure frequency of 350 days per year (NMED, ~~2006~~2009a);
- Exposure duration of 6 years (NMED, ~~2006~~2009a);
- Exposed skin surface area for whole body is 6,600 cm^2 for groundwater exposure via showering/bathing (USEPA, 2004a);
- Exposed skin surface area for face, forearms, hands, lower legs, and feet is 2,800 cm^2 for soil exposure (NMED, ~~2006~~2009a);
- Soil adherence rate of 0.2 mg/cm^2 (NMED, ~~2006~~2009a);
- ~~Inhalation rate of 0.42 m3/hour (10 m3/day) (NMED, 2006);~~
- Volatilization factor of 0.5 L/m^3 for groundwater as potable supply (USEPA, 1991a; NMED, ~~2006~~2009a); and

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- Body weight of 15 kg (NMED, ~~2006~~2009a).

2.2.3.3 Calculation of Exposure Point Concentrations

USEPA (1989) defines the exposure point concentration (EPC) as "the arithmetic average of the concentration that is contacted over the exposure period." To ensure that the estimate of the average (or mean) is conservative and not underestimated, USEPA (1989, 1992a) recommends using the 95% upper confidence limit of the mean (95%UCL) as an estimate for the EPC for each exposure area of a site. Statistical software provided by USEPA (i.e., ProUCL 4.00.04) has, to some extent, automated the process of calculating 95% UCLs and selecting the most representative statistic based on characteristics of the data set such as sample size, measures of variance, and frequency of detection (FOD). The most recent available version of the ProUCL software (USEPA, 2007b) was utilized to calculate EPCs for each exposure scenario evaluated.

2.2.3.4 Indoor Air

The potential for exposure to vapors from indoor air resulting from vapor intrusion from total soil, saturated vadose zone soil water (where present), and regional groundwater was evaluated for the hypothetical future site worker and hypothetical future resident using the USEPA vapor intrusion model (USEPA, 2004b). This is a very conservative model that utilizes default parameters to evaluate potential risks from vapor inhalation in indoor air. Based on current conditions at the HELSTF and the location of SWMUs in relation to existing buildings, it appears that none of the buildings are situated over soil or groundwater affected by VOCs. Therefore, the potential for vapor intrusion to be a complete pathway under current conditions is very low, and the vapor intrusion scenarios evaluated in the HHRAs are applicable for hypothetical future conditions in which buildings might be constructed overlying VOC impacted soil or groundwater.

2.2.3.5 Physical and Chemical Properties

The environmental fate and transport of constituents depend on the physical and chemical properties of the constituents, the environmental transformation processes affecting them, and the media through which the constituents are migrating. The physical and chemical properties for the COPCs used in the risk assessment are summarized in Table E.2-20. This table includes the molecular weight, water solubility, vapor pressure, Henry's Law Constant, diffusivity in air and water, the organic carbon partition coefficient (K_{oc}), and the octanol-water partition coefficient (K_{ow}).

2.2.3.5.1 Particulate Emissions from Soil

The soil concentrations (direct measurement data) were used to estimate the ambient air concentrations based on the emission of particulates from a site. Particulate emission factors (PEF) for use in evaluating exposures of the residential and commercial/industrial receptors addresses windborne dust emission only. The PEF for construction worker scenario considers windborne dust emission and emissions from vehicle traffic associated with construction activities.

Equations ~~14~~ 16 and ~~15~~ 17 of the NMED (~~2006~~2009a) guidance were used to calculate the New-Mexico region-specific PEF values for residential and commercial/industrial scenario, and construction worker scenario, respectively. Default NMED (~~2006~~2009a) input parameters were used in the calculation. Input parameters and the resulting PEF value can be found on Table E.2-21.

2.2.3.5.2 Volatilization Factor

To evaluate emission of volatiles from soil, chemical-specific volatilization factors (VFs) were calculated using equation ~~12~~ 14 and default input parameters from the NMED (~~2006~~2009a) guidance. The VF equation can be broken into two separate models: a model to estimate the emissions and a model to estimate the dispersion (reduced to the term Q/C) that simulates the dispersion of volatile constituents in ambient air. Input parameters and the resulting VFs can be found on Table E.2-21.

2.2.4 Risk Characterization

Potential risks to human health are evaluated quantitatively by combining calculated daily intakes and toxicity data. A distinction is made between non-carcinogenic and carcinogenic endpoints, and two general criteria are used to describe risk: the hazard quotient (HQ) for non-carcinogenic effects and excess lifetime cancer risk (ELCR) for constituents evaluated as human carcinogens.

2.2.4.1 Non-carcinogenic Effects – Hazard Quotients and Hazard Indices

Exposure doses are averaged over the expected exposure period to evaluate non-carcinogenic effects. The HQ is the ratio of the estimated exposure dose and the RfD. An HQ greater than 1 indicates that the estimated exposure level for that constituent is greater than the RfD. This ratio does not provide the probability of an adverse effect. Although an HQ of less than 1 indicates that adverse health effects should not occur,

an HQ that is greater than 1 does not imply that health effects will occur, but that health effects are possible.

The sum of the HQs is the hazard index (HI). A limitation with the HI approach is the assumption of dose additivity is applied to compounds that may induce different effects by different mechanisms of action. Consequently, the summing of HIs for a number of compounds that are not expected to induce the same type of effects or that do not act by the same mechanism may overestimate the potential for toxic effects (USEPA, 1989). Consistent with NMED and USEPA risk assessment guidelines for constituent mixtures, in the event that the total HI for an exposure scenario is greater than 1, it is incumbent on a risk assessor to segregate HQs by target organ/critical effect (NMED, ~~2006~~2009a; USEPA, 1989). Therefore, if the calculated HI is greater than 1 as a consequence of summing several HQs for constituents not expected to induce the same type of effects or that do not act by the same mechanism, the HIs may be segregated by effect and mechanism of action to derive separate HIs for each target-organ/critical-effect group (NMED, ~~2006~~2009a; USEPA, 1989). Where target organ HIs exceeded one, the COPCs contributing to those HIs are identified.

2.2.4.2 Carcinogenic Effects - Excess Lifetime Cancer Risk

The ELCR is an estimate of the potential increased risk of cancer that results from lifetime exposure, at specified average daily dosages, to COPCs at a site. Estimated doses or intakes for each COPC are averaged over the average lifetime of 70 years. It is assumed that a large dose received over a short period is equivalent to a smaller dose received over a longer period, as long as the total doses are equal. The ELCR is calculated as the product of the exposure dose and the CSF. The use of upper percentile EPC and RME exposure parameters result in a risk estimate that is considered to be an upper-bound estimate; in other words, the true risk is less than that predicted by the model.

2.2.4.3 Evaluation of Lead Exposures

Exposure to lead is evaluated differently than the other constituents. Cancer risk and non-cancer hazard quotients are not estimated from exposure to lead because health effects from exposure to lead are better characterized by estimating the amount of lead that may reach the bloodstream following exposure. Consistent with current USEPA guidance (USEPA, 2003c), the NMED SSLs for lead were calculated using the USEPA's Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK; USEPA, 2005b) for residential land use, and the USEPA's Adult Lead Model (ALM) for industrial land use. These models were used to back calculate soil concentrations for

children and adults (based on a pregnant mother's capacity to contribute to fetal blood lead levels), or when evaluating occupational scenarios at sites where access by children is reliably restricted, that would not result in an estimated blood-lead concentration of 10 micrograms per deciliter (µg/dL) or greater (residential adult of 400 mg/kg and industrial and construction worker of 800 mg/kg).

2.2.5 Uncertainties in the Human Health Risk Assessment

The risk estimates presented herein are a conservative estimate of potential risks associated with exposure to constituents detected in soil and groundwater at the HELSTF. Uncertainty is inherent in the risk assessment process, and a discussion of these uncertainties is presented in each site-specific HHRA. Each of the three basic building blocks for risk assessment (monitoring data, exposure scenarios, and toxicity values) contributes uncertainties. Each of the uncertainties is accounted for by using conservative assumptions wherever site-specific data are unavailable.

This risk assessment is based on the assumption that the available monitoring data adequately describe the occurrence of constituents in media at the site. Environmental sampling itself introduces uncertainty. This source of uncertainty can be reduced through a well-designed sampling plan, use of appropriate sampling techniques, and implementation of laboratory data validation and quality assurance and quality control (QA/QC). The data utilized in this report meet QA/QC requirements and are appropriate for use in a risk assessment.

The assumption that the concentrations will remain constant throughout the exposure period is a conservative approach, since ongoing natural attenuation and degradation processes likely will reduce the concentrations over time. Using the UCL or the maximum concentration as the EPC is also conservative. It is highly unlikely that receptors would be exposed to those upper bound concentrations over an extended period of time.

The toxicity values and other toxicological information used in this report likewise are associated with significant uncertainty. Many toxicity values are developed using results of studies in which laboratory animals are exposed to massively high doses of particular constituents over an entire lifetime. As such, these studies do not represent realistic examples of environmental exposures. In addition, humans are different than laboratory animals. Many, if not most, animals used for laboratory studies are genetically designed to be more sensitive than humans to specific compounds. In addition, the effects shown by the animals in the high-dose studies are often very

different than effects reported by humans in parallel epidemiological studies. This is because a particular compound may have a different mechanism of action in laboratory animals than it does in humans. Even epidemiological studies, which are generally preferable to animal toxicity studies, are characterized by several uncertainties, such as differential exposures and unknown (and uncontrolled) doses. Furthermore, some toxicity values are based on draft toxicity values and therefore may also produce uncertainty within the results.

Toxicity values are not available for dermal exposure. The USEPA-recommended approach to derivation of dermal toxicity values based on available oral toxicity values and oral absorption efficiencies contributes considerable uncertainty to the risk assessment.

Uncertainty is also associated with constituent mixtures. Information on the toxicity of specific mixtures is rarely available. The procedure generally applied to a potential event of simultaneous exposure to multiple constituents from a variety of sources assumes dose additivity, although it is possible that the interaction of multiple constituents could be synergistic or antagonistic.

Potential exposure scenarios contribute uncertainty to the risk assessment as well. The hypothetical future residential scenarios which assumes that receptors will be exposed to site soil and also to groundwater that will be used as a potable water supply is highly unrealistic since the site will most likely never be used for residential use. Exposure scenarios were developed based on site-specific information, USEPA exposure guidance documents, and professional judgment. Although uncertainty is inherent in the exposure assessment, and the exposure assumptions also were chosen to err on the side of conservatism, this uncertainty could lead to an overestimation or underestimation of potential risk.

A volatilation factor (i.e., the Andelman factor [1990]) of 0.5 was used to estimate volatilization from groundwater and evaluate potential exposure to VOCs in potable water released during hypothetical future household use. Certain assumptions were made in deriving the default factor that likely overestimate the risk to hypothetical future residents: 1) the volume of water used in a residence for a family of four is 720 L/day; 2) the volume of the dwelling if 150,000 L; 3) the air exchange rate is 0.25 m^3/hr; and 4) the average transfer efficiency weighted by water use is 50% (i.e., half of the concentration of each chemical in water is transferred into air by all water uses) (USEPA, 1991b).

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Maximum SQLs for some constituents that were never detected on-site exceeded screening levels. In accordance with NMED guidance, these elevated SQLs are evaluated as appropriate in each site-specific HHRA. Uncertainties associated with the elevated SQLs are examined in each site-specific section of this risk assessment.

2.3 Ecological Risk Assessment Methods and Procedures

The purpose of the ERAs is to evaluate the potential risks to ecological receptors associated with constituents in soil at the HELSTF sites.

The ERAs were conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA, 2001a; 2000b; 1997c). The ERAs are intended to provide a conservative understanding of environmental conditions as they relate to the protection of wildlife populations and communities for risk management decision-making at the HELSTF.

In accordance with USEPA guidance, the ERAs conducted for the sites at the HELSTF are comprised of a screening level ecological risk assessment (SLERA) and a baseline ecological risk assessment (BERA) (NMED, 2008; USEPA, 2000b; 1997c). The SLERA evaluates the potential risk to terrestrial ecological receptors exposed to constituents in surface and subsurface soil. The SLERA provides a conservative estimate of potential ecological risks and compensates for uncertainty by incorporating numerous conservative assumptions. The purpose of the SLERA is to determine whether or not there is a high probability that there are no ecologically significant risks that would merit additional evaluation as provided by a BERA (USEPA, 2000b; 1997c). If the results of the SLERA warrant a BERA, the information developed in the SLERA is used to help focus the BERA. The BERA is more complex than the SLERA and uses more realistic and site-specific information about potential exposures and effects in order to evaluate potential ecological risks.

The approach used to assess ecological risks associated with the HELSTF is based on the USEPA eight-step process (USEPA, 2001b; 2000b; 1997c), as summarized in Figure 2-2. An expanded view of the USEPA eight-step process is provided in Figure 2-3. As illustrated on Figure 2-3, the USEPA paradigm divides Step 3 into two pieces, Step 3a and Step 3b (USEPA, 2000b). Step 3a allows for a more refined analysis of available information, while Steps 3b and beyond focus on further evaluation(s) for only those receptors, media, and constituents that are identified in previous steps. According to the USEPA (2000b), “for the majority of sites, ERA activities will cease

after the completion of Step 3a." The details of each step and how they relate to the site ERA are described in this section.

The ERA process culminates in clearly defined scientific management decision points (SMDPs). The SMDPs represent critical steps where risk management decision-making occurs. Generally, the following types of decisions are considered at the SMDPs.

- Whether the available information is adequate to conclude that ecological risks (if any) are negligible and, therefore, there is no need for further action on the basis of ecological risk.

- Whether the available information is inadequate to make a decision at this point and the ecological risk assessment process should continue.

- Whether the available information indicates a potential for adverse ecological effects and a more thorough assessment or remediation is warranted.

The remainder of this Section presents the methods used in the ERA and is organized as follows:

- Screening Level Ecological Risk Assessment – this section discusses the steps taken in the SLERA and indentifies results that would indicate the need for a more refined BERA; and

- Baseline Ecological Risk Assessment– this section discusses the steps taken in the BERA.

2.3.1 Screening Level Ecological Risk Assessment

A SLERA conservatively estimates potential risks that may affect ecological receptors, including terrestrial and aquatic organisms. The SLERA typically compensates for uncertainty in a precautionary manner, by incorporating numerous conservative assumptions. The outcome of the SLERA is the conclusion that either there is a high probability that ecologically significant risks are not posed to receptors, or further investigation in the form of a BERA is warranted. The SLERA is comprised of the following steps:

- Step 1: Screening-Level Problem Formation and Effects Evaluation;
- Step 2: Screening Level Exposure Estimate and Risk Calculation; and
- Scientific Management Decision Point (SMDP).

For each of the sites, a SLERA was conducted following the typical steps in a SLERA, also incorporating some steps specific to NMED (2008), such as consideration of background soil metals data in the selection of constituents of potential ecological concern.

Step 1: Screening-Level Problem Formulation and Screening Level Ecological Effects Evaluation

Step 1 of a SLERA consists of both a screening level problem formulation and a screening level ecological effects evaluation. The screening-level problem formulation presents background information on site characterization, receptors, ecosystem characteristics, as well as information on the sources and effects of the stressors (USEPA, 1998). This information is used to develop a CSM that illustrates the potential relationships between stressors, pathways, and receptors such as:

- Environmental Setting;
- Identification of Constituents Detected;
- Description of Constituent Fate and Transport Pathways;
- Description of Constituent Mechanisms of Ecotoxicity;
- Description of Potentially Exposed Receptors;
- Identification of Potentially Complete Exposure Pathways; and
- Selection of Generic Assessment and Measurement Endpoints.

2.3.1.1 Environmental Setting

HELSTF is centrally located in the Tularosa Basin at approximately 4,000 ft elevation. The terrestrial habitat consists predominately of desert basin shrub. There is no

aquatic habitat at the HELSTF. A brief description of the environmental setting at each site is presented in the ERA report section devoted to that site.

2.3.1.2 Identification of Constituents Detected

The soil depth horizon of interest defined by NMED (2008) is from the ground surface to a depth 10 ft bgs. While many wildlife species would only be exposed to near surface soils (e.g., 0 to 2 ft bgs), the subsurface soils down to a depth of 10 ft bgs were included in the evaluation to address potential exposure scenarios in the event there are burrowing wildlife or vegetation with deep rooting zones. The range of detected concentrations and other relevant statistics for the soil data (0 to 2 ft bgs, and 0 to 10 ft bgs) were summarized for each site. Subsurface soil (i.e., soil at a depth greater than 10 ft bgs) was not evaluated with regard to ecological risks due to limited potential for wildlife exposures.

Soil data for each of the sites at the HELSTF were evaluated as discussed in Section 2.1 and data summaries were prepared for each medium. The data summary tables present the frequency of detection, the range of sample quantitation limits, the range of detected concentrations, and the EPC for each detected constituent in each medium. Data summaries are presented in the risk assessments for each SWMU(s) (Sections 3 through 20).

2.3.1.3 Description of Constituent Fate and Transport Pathways

Knowledge about the potential constituent fate and transport pathways is vital to understanding which constituents and receptors are associated with potentially complete current and future exposure pathways. This is because a constituent may reach an ecological receptor in a variety of ways. In addition, the pathway and route of exposure may have a strong influence on the ecological effect of a constituent. This information is used in the development of a CSM for potential ecological receptors.

2.3.1.3.1 Description of Constituent Mechanisms of Ecotoxicity

The mechanisms of ecotoxicity for constituents vary depending on a wide range of factors, such as constituent concentrations, the receptor species exposed, the exposure route (e.g., ingestion or direct contact), and physical factors (e.g., pH, soil type). Some of the effects that could be observed in wildlife are mortality, reduced reproductive ability, decreased fertility, decreased offspring survival, alteration of immune and behavioral function, decreased hatching success of eggs/larvae, and

retarded growth (Sample et al., 1996; USEPA, 2001b). The remainder of this subsection discusses mechanisms of ecotoxicity for the classes of constituents detected at the HELSTF. These descriptions of constituent mechanisms of toxicity are presented without consideration of constituent concentrations, as the descriptions are intended to convey an understanding of possible effects, rather than to describe the concentrations at which these effects might occur.

2.3.1.3.1.1 Volatile Organic Compounds

VOCs tend to attenuate rapidly in surface soil due to their inherent volatility. Although the effects of VOCs on ecological receptors are not well-understood, there have been extensive inhalation studies of the effects of VOCs under laboratory conditions. Inhaled volatile organics are typically metabolized in the body (often the liver), which may cause liver damage (depending on the organism) or the release of more toxic secondary metabolites. The VOCs or their metabolites may also cause neurological damage, and many are mutagenic or carcinogenic. Additionally, some VOCs are fetotoxic and/or teratogenic (USEPA, 2009b; Sample et al., 1996).

2.3.1.3.1.2 Semi-Volatile Organic Compounds

Semi-volatile organic compounds (SVOCs) include a wide variety of compound classes, such as phenols, organochlorine alkenes, phthalates, and polycyclic aromatic hydrocarbons (PAHs). SVOCs vary greatly in regard to their toxicity, mechanism of action, bioaccumulative potential, and susceptibility to being metabolized. Phthalates, a class of SVOCs, are known endocrine disruptors affecting sexual development in males. They are common in the environment, but do not dissolve easily in water and generally attach strongly to soil particles. PAHs such as acenaphthene and naphthalene are often released to the environment as a result of human activities, including the incomplete combustion of fossil fuels or other organic materials. Most PAHs are sorbed to solid particles in the environment, which radically reduces the bioavailability and toxicity of the sorbed PAHs. PAHs have been shown to cause changes in liver enzymes and to perturb cell membranes, but in general, are not viewed as acutely toxic.

2.3.1.3.1.3 Herbicides and Organochlorine Pesticides

While some herbicides and organochlorine pesticides may exhibit acute toxicity, most toxicity is due to due to long-term, chronic effects. These effects may include reduced fecundity, chronic lethality, neurological effects, cessation of feeding, and bone

degeneration (Nimmo and McEwen, 1994; Fontenot, 1999a,b). The mode of action for most herbicides and organochlorine pesticides is generally understood; they tend to disrupt electrolyte balance in neurons and prevent them from conducting nerve impulses normally (Ware, 1994). This manifests neurological effects such as reduced mobility, tremors, loss of equilibrium, convulsions, abnormal flexure, and lethargy or prostration. In addition, pesticides are well-known for causing eggshell thinning in birds and, thereby, reducing reproductive success (Newman, 1998; Sample et al., 1996). In general, the organochlorine pesticides have very low water solubility and are considered insoluble (Nimmo, 1985). However, they are soluble in non-polar solvents, and will preferentially move into fatty tissues. This fact, combined with the very slow breakdown rates, indicates that they will bioconcentrate into organisms in the lower levels of the food chain (such as worms) and will biomagnify into organisms in the higher levels of the food chain (such as raptors).

2.3.1.3.1.4 *Dioxins and Furans*

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are formed as by-products during the production of some herbicides, chlorophenols, and polychlorinated biphenyls (PCBs). They are also generated during the incineration of chlorinated compounds. There are 75 possible PCDD congeners and 135 possible PCDF congeners, and as with PCBs, their toxicity is dependent on the number and location of chlorine atoms. Additionally, dioxins and furans have large K_{ow} values which dictate their mobility and partitioning in environmental and biological media (Eisler, 1986). Due to their low mobility and high persistence and lipophilicity, dioxins and furans are accumulated in sediments, soils and sludge, bioconcentrated in aquatic organisms, and bioaccumulated in adipose tissue of aquatic and terrestrial organisms (Geyer et al., 2002).

2.3.1.3.1.5 *Polychlorinated Biphenyls*

PCBs (like Aroclor 1260 and Aroclor 1254) were designed for use in “closed” electrical systems like transformers, capacitors, and vacuum pumps. These compounds typically have low solubility, and low vapor pressures, and therefore tend to sorb to solid, organic material in the aquatic environment. However, PCBs can be transported in the air, and have been known to be present in measurable quantities in remote areas, far from where they were produced or used (Niimi, 1994). PCBs are known to bioaccumulate and biomagnify; however, they usually do not cause acute toxic responses, and their major effects are thought to be sublethal. In addition, PCBs are currently under scrutiny for endocrine disruption, and effects on the nervous and

immune systems in higher order taxa within the food chain (Fontenot, 1999a,b; Niimi, 1994).

2.3.1.3.1.6 *Explosives*

Subchronic or chronic toxicity studies with mammalian wildlife species were not found for nitroaromatic munition compounds. However, some compounds (e.g., trinitrotoluene, dinitrobenzene, RDX, and HMX) have been studied in common laboratory species (e.g., rats, mice, and dogs). The liver, kidney, and spleen appear to be the primary target organs for the tested nitroaromatic compounds. Adverse effects observed in mammals include reduced food intake, anemia, enlarged organs (liver, spleen), decreased body weight, testicular atrophy, reduced sperm production, lesions of various organs and tissues (e.g., cerebrum, spleen, liver, kidney, bladder, and urogenital tract), and, in one study, leukemia and malignant lymphoma of the spleen.

All but one of the tested nitroaromatic munition compounds is readily absorbed following oral administration (Talmage et al., 1999). The exception is HMX, which is poorly absorbed by the gastrointestinal tract (e.g., < 5 percent of oral dose in mice and rats), mostly being excreted in the feces as unchanged HMX. All of the tested munitions are rapidly metabolized and excreted in mammals and do not accumulate in tissues. Thus, nitroaromatic munitions are not expected to bioaccumulate. Low Kow values (i.e., log Kow values at or below 2) also indicate a low potential for bioaccumulation.

2.3.1.3.1.7 *Inorganics*

Many trace inorganics (e.g., cobalt, copper, chromium, iron, manganese, nickel, molybdenum, selenium, and zinc) are important in plant and animal nutrition, but the optimal concentration ranges are usually narrow (Leland and Kuwabara, 1985). Other inorganics are nonessential, such as lead, cadmium, and mercury, and are toxic to receptors at very low concentrations.

Mechanisms of toxicity of inorganics to plants tend to depend on the nature of the reactivity of the inorganic itself (Efroymson et al., 1997a). They may alter or inhibit enzyme activity, interfere with deoxyribonucleic acid (DNA) synthesis or electron transport, or block uptake of essential elements. Little is known about mechanisms of toxicity of constituents in earthworms (Efroymson et al., 1997b).

Trace metals (such as arsenic, barium, beryllium, chromium, copper, lead, and zinc) are better understood than PAHs and PCBs with respect to their potential adverse impacts on aquatic wildlife (Newman, 1998). Chromium, copper, and zinc are essential for healthy enzyme function, and some organisms cannot survive without these metals. However, these naturally occurring constituents may cause adverse effects when exposure occurs at concentrations that significantly exceed background concentrations. The toxicity and effects of trace metals may be greatly influenced by pH and organic carbon content of the media in which they occur (Leland and Kuwabara, 1985).

Imbalances in the essential trace metals may cause a decrease in photosynthetic ability, poor spawning/hatching success, teratogenesis, susceptibility to predation and disease, reduced growth, mortality, histopathological changes, organ dysfunction of the liver or kidneys, neurological defects, changes in respiration and osmoregulation, and anemia. Some metals may bioaccumulate, but this mechanism is thought to be a less important ecological concern. Because these constituents are naturally occurring, many organisms have a capacity (albeit limited) to biotransform and/or eliminate naturally occurring inorganics (Newman, 1998; Leland and Kuwabara, 1985).

2.3.1.3.2 Description of Potentially Affected Receptors

The identification of the categories of receptors most likely to be exposed helps to focus the SLERA. Potentially exposed receptors are designated based on the available habitat associated with the HELSTF. As described above, potentially exposed receptors include terrestrial wildlife (including mammals, birds, reptiles, and invertebrates), and terrestrial plants.

This section also provides an evaluation of potential exposures to individual organisms of threatened and endangered species at the sites. The New Mexico Department of Game and Fish (NMDFG) biennial review of threatened and endangered species in New Mexico does list several birds, plants, fish, amphibians and reptiles as species of conservation concern in Otero County. However, previous ecological evaluations of the facility have determined that there are no rare, threatened or endangered species known or expected to occur in the habitat present at the sites (White Sands Technical Services, 2008). Furthermore, it has been reported that the habitat present at the HELSTF is not considered rare or sensitive by any of the regulatory agencies that oversee these issues, including the U.S. Fish and Wildlife Service (USFWS), NMDGF, and the White Sands Missile Range Directorate of Environment and Safety. Therefore,

additional consideration of species and habitats of concern is not included in this risk assessment.

2.3.1.3.3 Identification of Potentially Complete Exposure Pathways

A complete exposure pathway is "one in which the chemical can be traced or expected to travel from the source to a receptor that can be affected by the chemicals" (USEPA, 2001c). Therefore, a constituent, its release and migration from the source, a receptor, and the mechanisms of toxicity of that constituent must be demonstrated before a complete exposure pathway can be identified. The table below illustrates possible exposure routes for the two general types of terrestrial receptors at the HELSTF (USEPA, 1999).

Organism	Possible Exposure Routes
Terrestrial animals	Ingestion, inhalation, dermal contact, food chain
Terrestrial plants	Direct contact, leaf absorption of soil vapor, leaf absorption of constituents deposited on leaves, root uptake

Although inhalation is listed as a possible exposure route, under most exposure conditions inhalation pathways do not represent a significant contribution to receptor risk (USEPA, 2005c), and are not evaluated quantitatively in this risk assessment.

A CSM was developed for the HELSTF sites with potentially complete exposure pathways. The CSM is a matrix that graphically illustrates the potentially complete exposure pathways. It integrates the potential sources of concern, the media in which they are present, the exposure routes by which they interact with ecological receptors, and various types of ecological receptors. It should serve as a predictive model to link the constituents and the receptors. The CSM helps to identify uncertainties and key assumptions about the sites within the HELSTF. The CSMs used in the HELSTF risk assessments are patterned after the USEPA guidance on building appropriate CSMs (USEPA, 1999; 1998) and the NMED guidance for ecological conceptual exposure models (NMED, 2008).

2.3.1.3.4 Identification of Generic Assessment and Measurement Endpoints

Assessment endpoints are the explicit expression of the ecological values to be protected (USEPA, 1999). The selection of assessment endpoints depends on knowledge of the receiving environment, knowledge about the constituents released (including their toxicological properties and the relevant concentrations), and understanding of the values that will drive risk management decisions (Suter et al., 1995). Consistent with USEPA (1998) guidance, two elements are required to define an assessment endpoint: the specific valued ecological entity and the characteristic about the entity that is important to protect.

The USEPA (1997c) guidance states "For the SLERA, assessment endpoints are any adverse effects on ecological receptors, where receptors are plant and animal populations and communities, habitats, and sensitive environments. Many of the screening ecotoxicity values are based on generic assessment endpoints (e.g., protection of communities from changes in structure or function) and are assumed to be widely applicable to sites around the United States". However, the identification of assessment endpoints is limited by the availability of ecotoxicity screening values for all media.

USEPA guidance provides that remedial actions should be designed not to protect organisms on an individual basis, but to protect local populations and communities of biota (USEPA, 1999). Thus, the first management principle for conducting an ERA is to provide a basis for selecting a response action "that will result in the recovery and/or maintenance of healthy local populations/communities of ecological receptors that are or should be present at or near the site" (USEPA, 1999).

For the HELSTF, hypothetical assessment endpoints include the following:

- Sustainability of small mammal populations;
- Sustainability of avian populations;
- Sustainability of terrestrial plant communities; and
- Sustainability of soil invertebrate communities.

Because direct measurement of assessment endpoints is often difficult or impossible, surrogate endpoints called measurement endpoints are used to provide the information necessary to evaluate whether the values associated with the assessment endpoint

are being protected. A measurement endpoint is defined as a measurable ecological characteristic and/or response to a stressor (USEPA, 1998). Hazard quotients typically serve as the measurement endpoints for SLERAs and are further discussed in Section 2.3.3.

2.3.1.4 Comparison with Background Concentrations

The focus of the risk assessments is on those constituents that are related to activities at the HELSTF. Many constituents (particularly naturally occurring metals) are present in environmental media but are unrelated to site releases. Such background constituents fall into two broad categories: those that are naturally occurring and those that are present due to anthropogenic sources (USEPA, 2001a). Inorganic constituents often occur naturally in soil and geological formations. Solutional weathering, and dissolution of underlying soil, may be a means of transporting these constituents into media at the site. Background constituents also may come from a variety of anthropogenic sources such as road runoff, atmospheric deposition, washout by rainfall (or precipitation scavenging), and surface flow of constituents from upstream sources unrelated to activities at a given site.

As part of the SLERA process, site-specific data were compared with established ambient or background levels. This comparison determines if the detected site related concentrations differ significantly from the background concentrations established for each site. A method for characterizing background conditions for soil at HELSTF is provided in the Background Characterization (Appendix F of the Revised Phase III RFI Report).

As discussed in Appendix F, the site-specific data were compared with the site-specific background data as presented in the Background Evaluation (Table E.2-1 and Appendix F of the revised Phase III RFI Report). Constituents present at or below background levels were not identified as COPECs and thus, were excluded from further evaluation in the ecological risk assessment. Constituents that are present at a concentration above background, including constituents not detected in background, were retained for further consideration. Exceptions were made for some vital electrolytes and essential nutrients such as calcium, iron, magnesium, sodium, potassium, and phosphorus (USEPA, 2001a).

2.3.1.5 Frequency of Detection

Constituents that are infrequently detected might not be related to site-specific operations and therefore should not be considered in the risk assessment evaluation.

In accordance with the NMED (2008) guidance, constituents with detection frequency of less than five percent that are not suspected to be related to the SWMU were not carried forward in the BERA evaluation.

2.3.2 Screening-Level Ecological Effects Evaluation

The screening-level ecological effects evaluation involves the identification of ecological screening levels (ESLs) for each constituent found in each environmental medium at the HELSTF (Table E.2-22). ESLs are generally based on effects such as mortality and reproductive impairment, and are assumed to be widely applicable to sites around the United States for screening purposes (USEPA, 1997c). For most constituents and receptors, the data available to generate ESLs are limited and related to effects on individual organisms, rather than populations or communities. Given these limitations, conservative assumptions are typically used to ensure that the ESLs are protective. ESLs available in the literature are screening values and do not constitute remediation goals, as they are sometimes based on highly conservative exposure assumptions and/or wildlife receptors that may not be applicable to a particular site. As such, their robustness and biological association with the assessment endpoint may be limited. However, conservative benchmarks provide a starting point for the SLERA in that they may provide an indication of the worst-case measure of the potential for adverse effects. Typically in a SLERA, ESLs are gathered from a few sources leaving constituents without ESLs to be evaluated in the BERA. Ecological soil screening levels have not been developed by NMED or USEPA Region 6. Therefore, the following hierarchy was used to identify soil ESLs for the SLERA:

- USEPA Ecological Soil Screening Levels (EcoSSLs) (USEPA, 2008~~e~~b; http://www.epa.gov/ecotox/ecossl/);
- USEPA Region 4 Ecological Soil Screening Values (USEPA, 2001d); and
- USEPA Region 5 Ecological Soil Screening Levels (USEPA, 2003d).

To date, ecological screening levels for TPH have not been developed by USEPA or other state agencies, including NMED. Therefore, additional sources (e.g., Efroymson, et al., 2004; Wong et al., 1999) were obtained that provide additional information on the toxicity of TPH and suggest possible ecological benchmarks. The American Petroleum Institute (API) notes in a 1997 publication that “disposed wastes containing crude oil are generally protective of water, plants and soil microbes if they contain no more than 10,000 mg/kg of oil and grease or TPH in soil” (Efroymson et al., 2004). At this

concentration, plant growth and yield should not be impaired (Deuel, 1991; Overcash and Pal, 1981). A benchmark protective of plants and invertebrates of 10,000 mg/kg is used in this report.

Additionally, in this step, constituents that have a tendency to bioaccumulate were also identified if they are included in the USEPA list of bioaccumulative compounds (USEPA, 2000c).

2.3.3 Screening-Level Exposure Estimate and Risk Calculation

The screening-level exposure assessment is comprised of the identification of exposure estimates, risk calculations, and the evaluation of uncertainties (USEPA, 2001a; 1999). These components form the lines of evidence necessary to support the SMDP at the conclusion of the SLERA.

The exposure concentrations that are used in the SLERA are the maximum concentrations (NMED, 2008; USEPA, 2000b; 2001a). The data sets from which the maximum concentrations are drawn are the same site specific data sets used in the Revised Phase III RFI, and include the available data collected during the Phase I, Phase II, and Phase III RFIs. The surface soil data (0 to 2 ft bgs) is pooled into a single data set to identify the maximum concentration for that depth interval. Surface and subsurface soil data (0 to 10 ft bgs) is similarly pooled into a single data set. Surface water and sediment habitats are not present on or adjacent to the sites at the HELSTF.

Non-detected constituents are also evaluated with respect to the ecological screening levels. The SQLs or RLs of non-detected constituents exceeding their screening level are identified during the screening process and discussed in the uncertainty section.

Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the “maximum HQ”, is a highly conservative surrogate for the assessment endpoints. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse or significant ecological effects are unlikely (USEPA, 1997c). Maximum HQs greater than 1 indicate that further evaluation is warranted to evaluate the potential for adverse ecological effects. Therefore, the constituents with HQs greater than 1 are identified as Constituents of Potential Ecological Concern (COPECs) and carried forward into Step 3a of the BERA, except where the constituents are inorganics with maximum concentrations that are not greater than background levels. The comparison with

background is typically done in the first step of a BERA; however, in accordance with NMED guidance (2008), the background comparison was done in the SLERA COPEC selection process. Detected constituents were also identified as COPECs if no ESL was available.

In cases where exceedances are considered extremely marginal or slight, discussion with risk managers for the site may result in a constituent with a HQ greater than 1 not being evaluated in the BERA.

The lack of screening ecotoxicity values for some constituents is one of the main contributors to uncertainty associated with the SLERA evaluation. HQs cannot be calculated for constituents that lack screening ecotoxicity values. Therefore, a constituent that lacks a screening value was carried forward to the BERA. Exception to this may occur when risk managers for the site agree that a BERA is not warranted. For example, the situation may exist that a very limited number of constituents do not have screening values, and those constituents that do have screening values have HQs well below a value of 1. These risk management decisions are agreed to during the SMDP.

2.3.3.1 Evaluation of Uncertainties

Uncertainty is “the imperfect knowledge concerning the present or future state of the system under consideration; a component of risk resulting from imperfect knowledge of the degree of hazard or of its spatial and temporal distribution,” (USEPA, 1997c). Uncertainties that may lead to either an overestimate or underestimate of risk are associated with each stage of risk assessment. Uncertainty is inherent to ERA, in part, because the sciences of ecology and ecotoxicology are relatively young and not yet fully developed (Kapustka and Landis, 1998; Newman, 1998; Emlen and Springman, 2007; Kapustka, 2008; Suter, 2008). Uncertainty also exists in many aspects of the toxicology relied upon for conducting ERAs (Newman, 1998; Lovett Doust, et al., 1993; Dale, et al., 2008). Uncertainties associated with the SLERA are identified on Table E.2-23.

2.3.3.2 Scientific Management Decision Point and Reporting

This first SMDP is purposefully flexible (per the USEPA paradigm) to occur after Steps 2 or 3a, depending on the results obtained at Step 2 (Figure 2-3). The purpose of the flexibility of the first SMDP is so that additional evaluation of risks can occur and reporting can be streamlined into a single report. The results of the SLERA were expressed in terms of the following conclusions or recommended actions:

1. There is adequate information to conclude that ecological risks are unlikely and no further action is warranted.

2. The information is not adequate to make a decision at this point. The ecological risk assessment process will continue to Step 3a – the initial step of the BERA.

3. Remedial actions may be considered for the media and constituents that are identified at the end of Step 2, to determine if cost-effective actions can be implemented to reduce or prevent risks to wildlife.

One of these three outcomes is recommended for each site, and the results are summarized in the SLERA. The USEPA encourages the submittal of the results of Steps 1 through 3a as a single deliverable document for sites that proceed beyond Step 2 (USEPA, 2000b).

2.3.4 Baseline Ecological Risk Assessment

The BERA is designed to more realistically identify the nature and extent of ecological risks to support informed risk management decision-making (USEPA, 2000b; 1997c). This approach contrasts with the SLERA, which is designed to conservatively rule out further evaluation of constituents and media that clearly do not pose a significant ecological risk.

The BERA was conducted in a manner consistent with the following guidance:

- "Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment" (NMED, 2008);

- "Ecological Risk Assessment Guidance for Superfund" (USEPA, 1997c; 1999);

- "Amended Guidance on Ecological Risk Assessment at Military Bases: Process Considerations, Timing of Activities, and Inclusion of Stakeholders" (USEPA, 2000b);

- "ECO-Update: Role of Screening-level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments," (USEPA, 2001a); and

- "Guidelines for Ecological Risk Assessment" (USEPA, 1998).

Step 3a of the BERAs for the HELSTF sites is a refinement of the Step 2 exposure estimates and risk characterization, focused only on the constituents and media that progress beyond the SLERA. The assumptions used in Step 3a are refinements of the conservative estimates of exposure and toxicological impacts, to site-specific (or receptor-specific) estimates of exposure, and more relevant ecotoxicity screening values, if available (USEPA, 2001b). Risks are recalculated using these refined assumptions. The outcome of this refined screening process is a list of COPECs to be retained for further evaluation in the BERA process. This effort was conducted as part of the Step 3a, BERA Problem Formulation. Step 3a involves the refinement of the following:

- Media of Concern;
- Constituents of Potential Ecological Concern (COPECs);
- Risk Calculations for Direct Contact COPECs;
- Assessment and Measurement Endpoints for Bioaccumulative COPECs;
- Bioaccumulative COPECs by Preliminary Food Chain Modeling;
- Risk Characterization by Evaluation of Weight of Evidence and Ecological Significance; and
- Uncertainties.

Step 3a is followed by a SMDP that involves the reporting of results of Steps 1 through 3a.

2.3.4.1 Refinement of Media

The process of refining media of concern helps focus the BERA on the media that may be associated with potentially significant ecological exposure pathways, and therefore, potentially contribute to significant ecological risks. This methodology is consistent with the concepts addressed in American Society for Testing and Materials (ASTM) Ecological Risk-Based Corrective Action (Eco-RBCA) guidance (ASTM, 2002b), which was developed in partnership with the USEPA. Eco-RBCA demonstrates that there are criteria that can be used to refine the media of concern for an ERA. The states of

Pennsylvania, Massachusetts, Louisiana, and Texas (among others) have a component of their ERA guidance that allows for refinement of media of concern based on specified criteria (Pennsylvania Department of Environmental Protection [PADEP], 1998; Massachusetts Department of Environmental Protection [MADEP], 1996; Louisiana Department of Environmental Quality [LDEQ], 1999; and TCEQ, 2001).

The process for refining the media of concern results in a detailed discussion of how key practical considerations are incorporated into the decision-making process.

The remainder of this section provides a discussion of the decision logic used for the evaluation of soil, since it is the only medium of concern at the HELSTF sites.

2.3.4.1.1 Disturbed Ground

Disturbed ground is considered first in the decision logic for soil. Disturbed areas are generally not attractive to wildlife, including threatened and endangered species, and do not serve as valuable habitat, foraging area, or refuge for ecological communities. Disturbed ground usually consists of pavement, buildings, landscaped area, a functioning landfill cap, roadways, equipment storage areas, a manufacturing or process area, or other surface cover or structure. Waste control units with engineered covers are considered disturbed ground, provided they are meeting their design specifications. Crop and pastureland are generally not considered disturbed ground (TCEQ, 2001).

2.3.4.1.2 Physical Barriers

Physical barriers are also considered in the decision logic. If there is a natural or manmade barrier in place that prevents ecological receptors from interacting with the affected soil, then the soil pathway is considered to be incomplete. Examples of physical barriers are certain geological formations, pavement, caps, buildings, or cement covers (TCEQ, 2001).

2.3.4.1.3 Spatial Extent

The spatial extent of the release area is also considered in the decision logic. The size or space of a contaminated area is directly related to the potential for ecological exposure if ecological habitat is present. Spatial scale can be useful as a screening criterion if used in conjunction with other considerations, such as the valued ecological resources that may be present, current and future land use, the likelihood for

contaminant migration from the site, and the proximity to a valued or sensitive ecological habitat.

Spatial scale screening criteria are used widely in ERA. Although New Mexico does not have any guidance on spatial scale criteria, several states' guidance address the importance of spatial scale in ecological assessments, as does the ASTM Standard Guide for Risk-Based Corrective Action for Protection of Ecological Resources. E-2205-02 (ASTM, 2002b). For example, the following spatial scale screening criteria are used by the following states: 1 to 2 acres for Minnesota (the smaller scale for bioaccumulative compounds); 1 acre for Texas~~, Louisiana,~~ and Mississippi; ~~and~~ 2 acres for Pennsylvania; and 5 acres for Louisiana. (Minnesota Pollution Control Agency [MPCA], 1998; TCEQ, 2001; Mississippi Department of Environmental Quality [MDEQ], 1997; LADEQ, 1999; PADEP, 1998). Massachusetts' Stage I screening recommends evaluating the size of the terrestrial habitat and the extent to which it is connected with other habitats: no action recommended for less than 2 acres (and some considerations for affected areas greater than 2 acres but less than 6 acres, dependent on an evaluation of "significant exposure pathways"). Pennsylvania actually provides the rationale for the criteria, discussing how population-level exposures are unlikely to occur at small spatial scales such as less than 2 acres (PADEP, 1998). This criterion has often been referred to as *de minimis* because it is not expected to cause adverse impacts to the population, community, or ecosystem, providing other conditions are met (Suter et al., 1995; Henning and Shear, 1998; Efroymson et al., 2003).

A 1-acre screening criterion may be used at each site to refine the media of concern, providing the following additional *de minimis* criteria are met:

- Similar but unimpacted habitat must be available adjacent to the impacted area;
- Sensitive habitat must not be present within ¼ mile if the COPECs will migrate off site; and
- COPEC fate and transport must be unlikely to increase the spatial extent to greater than 1 acre.

2.3.4.1.4 Medium of Concern Summary

Based on these factors, one of the following three outcomes was selected for the soil at each site.

1. Soil exposures are not a concern**:** If ecological exposures to soil are not a concern for a given site following this screening process, then no further BERA activities are required.

2. Soil exposures are a potential concern – remedial options considered**:** Consideration was given to remedial actions that prevent ecological exposures.

3. Soil exposures are a potential concern – proceed to the screening of COPECs**.**

The remainder of the BERA evaluates the potential risks in soil areas not excluded based on these practical considerations.

2.3.4.2 Refinement of Constituents of Potential Ecological Concern

The refinement of the COPECs identified in the SLERA is necessary to help focus further risk assessment activities on the constituents which pose the greatest potential risk to ecological receptors. USEPA guidance for this approach (USEPA, 1999; 2000b; 2001a; 1997c) indicates that the refinement of COPECs streamlines the overall ERA process by using realistic criteria to focus the risk assessment on those constituents that may pose unacceptable ecological risks. It is intended as an "incremental iteration of exposure, effects, and risk characterization" (USEPA, 2001a). The outcome of this screening is that constituents are either excluded as COPECs or retained for further evaluation in the BERA process.

The refinement of COPECs is focused on refining the ecological exposure assumptions. An EPC is calculated for each constituent separately. These EPCs are compared with the relevant SLERA screening toxicity values. To the extent appropriate, the 95 percent UCL on the mean concentration is used as the EPC for the refinement of COPECs. The UCL for each COPEC is calculated using the USEPA's ProUCL 4.00.04 statistical software (USEPA, 2007b).

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The UCL represents an upperbound estimate of average exposure conditions, which is an appropriate estimate for mobile terrestrial wildlife species and for exposures of plant and animal communities (rather than individuals). However, the UCL may not be considered the appropriate comparative statistic if the data sets are small. In this case, the maximum detected concentration is considered the appropriate comparative statistic. In cases where the UCL is greater than the maximum detected concentration, the maximum detected concentration is used as the EPC. Constituents with EPCs

greater than the SLERA screening ecotoxicity value, and analytes for which there are no screening ecotoxicity values, are retained for further consideration.

Each of the constituents identified as a COPEC is considered a COPEC for direct contact exposures. A subset of these COPECs is also considered for bioaccumulative exposures. A list of bioaccumulative constituents prepared by the USEPA is used to identify potential bioaccumulative COPECs (i.e., those constituents that will magnify in the food chain). Table E.2.22 identifies the bioaccumulative COPECs for the HELSTF sites as defined in the USEPA guidance *Bioaccumulative Testing and Interpretation for the Purpose of Sediment Quality Assessment, Status and Needs* (USEPA, 2000b). Direct contact COPECs that are listed as bioaccumulative compounds are also considered and evaluated as bioaccumulative COPECs.

All constituents that remain COPECs are further evaluated using methods to assess risks associated with direct contact exposures, and constituents that are likely to bioaccumulate are also evaluated using methods to assess risks associated with food chain exposures. However, if at the end of the refinement of COPECs there are no COPECs, the BERA is complete for the site and the results are summarized per the Step 3a SMDP.

2.3.4.3 Refinement of Risk Calculations for Direct-Contact COPECs

The SLERA risk calculations are further refined for direct contact COPECs by recalculating HQs using an expanded range of sources for ecotoxicity screening values obtained from the scientific literature. The EPCs are divided by alternative toxicity values, where these values are available. The sources of ecotoxicity screening values for soil are the following:

- USEPA Ecological Soil Screening Levels (EcoSSLs) (2005c; 2008~~c~~b);
- USEPA Region 4 Ecological Soil Screening Values (USEPA, 2001d);
- USEPA Region 5 Ecological Screening Levels for Soil (USEPA, 2003d); and
- Oak Ridge National Laboratory database of soil screening levels (Sample et al., 1996; Efroymson et al., 1997a,b).

There are numerous reasons to include an expanded range ecotoxicity screening values, and the methodology is consistent with the approach for, “incremental iteration of exposure, effects, and risk characterization” (USEPA, 1999; 2001a; 1997c). For

example, some constituents may not have screening values in the guidance used for the SLERA, and alternative effects values may be available for more appropriate species.

Soil screening values may be based on microbes, earthworms, mammals, or birds, but often, the screening ecotoxicity value is the lowest value, regardless of wildlife receptor group (USEPA, 2000b). However, the organism upon which the screening value was based may not necessarily be the species of interest at the site due to habitat constraints. The USEPA EcoSSLs (2005c; 2008~~c~~b) provide a range of values for a variety of species for each constituent, as does the Oak Ridge database of soil screening levels (Efromoyson, et al., 1997a,b). Depending on the terrestrial habitat at each site, this step in the ecological risk evaluation approach allows for the application of expanded ecotoxicity values to calculate HQs for species known or reasonably thought to be present. Also, a range of HQs may be developed so that some of the uncertainty can be quantified.

Predictions of the likelihood for adverse effects, if any, for the direct contact COPECs are based on HQs (USEPA, 1999; 2000b). The results of the refined risk calculations are presented in tabular form, and constituents with HQs greater than 1 (rounded to nearest whole number) are further considered to assess whether unacceptable ecological risks may exist. A range of HQs is provided for COPECs, because a range of screening ecotoxicity values provides greater insight into potential ecological risks.

These results of the refinement are discussed within the context of weight of evidence and ecological significance of risk estimates (Section 2.3.4). However, if there are no constituents for which the HQ is greater than 1, the risk assessment process for direct contact toxicity is considered complete and the results are summarized per Step 3a SMDP.

2.3.4.4 Assessment and Measurement Endpoints for Bioaccumulative COPECs

The assessment and measurement endpoints from the SLERA are refined for bioaccumulative COPECs listed in Table E.2.22. Bioaccumulative COPECs are those COPECs that may have toxic effects when they transfer through the food chain. The SLERA assessment and measurement endpoints should be refined for bioaccumulative COPECs because the SLERA endpoints are general in nature and do not necessarily identify receptors that are susceptible to food chain exposures. BERA assessment endpoints for bioaccumulation are based on receptors appropriate to the habitat present at a site, as well as the media in which bioaccumulative COPECs are identified. The measurement endpoints will depend upon the species potentially

exposed to the COPECs, the medium or media through which trophic transfer(s) may occur, and the mechanisms of ecotoxicity for the COPECs. Food chain modeling is only conducted where wildlife habitat is present, and potential for exposure to bioaccumulative constituents exists for a given receptor group.

Example assessment and measurement endpoints that are used for the site-specific risk assessments are as follows:

Assessment Endpoint	Measurement Endpoint	Effects Measured
Survival and reproductive success of mammals exposed to bioaccumulative compounds in the terrestrial food chain	Changes in survival and reproduction as indicated by food chain modeling for mammalian indicator species	NOAELs and LOAELs related to chronic effects such as reduced survival and reduced litter size
Survival and reproductive success of birds exposed to bioaccumulative compounds in the terrestrial food chain	Changes in survival and reproduction as indicated by food chain modeling for avian indicator species	NOAELs and LOAELs related to chronic effects such as eggshell thinning or reduced fledgling survival

NOAEL no-observed-adverse-effect-level

LOAEL lowest-observed-adverse-effect-level

2.3.4.5 Refinement of Bioaccumulative COPECs by Preliminary Food Chain Modeling

Preliminary ingestion-based food chain modeling is used in Step 3a of the BERA to evaluate bioaccumulative COPECs. The purpose of the food chain modeling is to characterize potential exposures to COPECs via the food chain and to identify potential adverse effects for mammals and birds. Through this preliminary food chain modeling, COPECs are either retained for or eliminated from further consideration. The remainder of this section provides general information regarding the following components of the model:

- Wildlife receptors and exposure parameters;
- Bioaccumulation and bioconcentration factors;
- Food chain ingestion modeling;
- Ecotoxicity benchmarks and extrapolation approach; and
- Risk characterization for food chain modeling.

2.3.4.5.1 Terrestrial Wildlife Receptors and Exposure Parameters

Indicator species were chosen to represent a cross-section of feeding guilds for selected assessment endpoints and allow estimation of rates of survival, growth and reproduction for populations or receptors they represent.

Indicator species selected are as follows:

- herbivorous bird: mourning dove (*Zenaida macroura*);
- insectivorous bird: cactus wren (*Campylorhynchus brunneicapillus*);
- carnivorous bird: red-tailed hawk (*Buteo jamaicensis*);
- herbivorous mammal: Merriam's kangaroo rat (*Dipodomys merriami*);
- insectivorous mammal: desert shrew (*Notiosorex crawfordi*); and
- carnivorous mammal: desert kit fox (*Vulpes macrotis*).

Indicator species were selected to represent avian and mammalian populations that reside or forage in habitats present on the sites. Indicator species were not selected to represent reptiles that likely use each site, because the available toxicity data are insufficient to support establishing distinct risk-based screening criteria (USEPA, 2005c). A summary of the available effects data for reptiles is discussed below.

Because effects data for amphibians and reptiles are extremely limited (Sparling, et al., 2000), it is necessary to assume that the risk characterizations for other receptors is protective of these species. Most information on reptilian toxicity of metals arises from free ranging specimens. This implies that almost all data are derived from greatly undefined, very likely multi-compound, long term exposure conditions (Sparling et al., 2000). The literature that is available for reptiles generally consists of reptilian mortality resulting from pesticide applications, reports of residue analyses of various contaminants, and limited information concerning the inhibitory effects of organochlorines on detoxifying enzyme activity (Hall, 1980, Sparling et al., 2000). Recent studies have been conducted on the effects of endrocrine-disrupting chemicals on alligator populations but provide no data for metals. Albers et al (1986) compared tissue residues of seven metals in snapping turtles from two contaminated sites, one a freshwater habitat and the other a brackish habitat. No toxicity data was available however.

A graphical representation of the terrestrial receptors identified for each site for food chain modeling is presented in Figure 2-4. The rationale for selection of each of these species is discussed below.

Selection of Herbivorous Avian Receptor – Mourning dove is among the most abundant and widespread terrestrial bird species endemic to North America and has been observed on the HELSTF. It is an herbivorous bird that forages on the ground. Open habitats are preferred, but the species generally shuns only extensively forested areas and wetlands (Tomlinson, 1993). Mourning doves are habitat generalists that opportunistically take advantage of seasonally available food resources among a wide variety of habitats that vary across its extensive range. Diet consists mostly (99%) of seeds from cultivated or wild plants with insignificant amounts of animal matter and leafy vegetation incidentally ingested. Mourning doves feed almost entirely on the ground, and avoid rank, tall vegetation. They seldom feed where ground litter makes food difficult to find (Mirachi, 1993).

Mourning dove was selected to represent herbivorous birds for the following reasons:

- It has been observed on or near the sites;
- It feeds primarily on seeds, which potentially bioaccumulate COPECs;
- COPEC bioaccumulation data are available for plants;
- It gleans food from the ground resulting in a relatively high incidental soil ingestion rate, a potential route of exposure to COPECs; and
- A substantial amount of literature for exposure parameters and toxicity values for birds are available.

Selection of Insectivorous Avian Receptor – The cactus wren is an insectivorous bird that forages on the ground and in low vegetation for insects, spiders, other small invertebrates, cactus fruits, other fruits, nectar, and seeds (Bent, 1948; Anderson and Anderson, 1973; both cited in California Department of Fish and Game [CDFG], 2005). However, cactus wren feed primarily on insects. In Arizona, the cactus wren diet is composed mainly of beetles, ants and wasps, grasshoppers, butterflies and moths, true bugs, and spiders (Beal, 1907; Storer, 1920). Vegetation is used for cover, and nests are also used for roosting. Nesting typically occurs in cactus or other thorny shrubs. The cactus wren territory averages 4.8 acres and is likely similar to the home range (CDFG, 2005).

Cactus wren was selected to represent insectivorous birds associated with the sites for the following reasons:

- It is a common bird in desert riparian habitats and xeric scrub and cactus habitats;
- Suitable habitat is available on the sites;
- It preys on primarily insects, which may accumulate COPECs;
- COPEC bioaccumulation data are available for invertebrates;
- It forages on the ground during which the intake of COPEC could occur through incidental soil ingestion; and
- A substantial amount of literature for exposure parameters and toxicity values for birds are available.

Selection of Carnivorous Avian Receptor – Red-tailed hawks are moderately large soaring birds that inhabit open or semi-open areas. They prey on ground-dwelling vertebrates such as hares, mice, small birds, amphibians, and reptiles. They may be exposed to COPECs through bioaccumulation in prey that forage on the ground and ingest soil incidentally through food. Red-tailed hawks lay one clutch per year with one to three eggs. Most red-tailed hawks attempt to breed at two years of age. They are territorial throughout the year and have a home range size that can vary from less than 1 to over 10 square kilometers (km^2)(CDFG, 2005).

Red-tailed hawk was selected as a representative species for the following reasons:

- Red-tailed hawks have been observed at some of the HELSTF sites;
- It preys on small mammals, which may bioaccumulate COPECs;
- COPEC bioaccumulation data are available for small mammals; and
- A substantial amount of literature for exposure parameters and toxicity values for birds are available.

Selection of Herbivorous Mammalian Receptor – The kangaroo rat is primarily herbivorous, but may also feed on arthropods seasonally. It is found in desert scrub and alkali desert scrub, sagebrush, Joshua tree, and pinyon-juniper habitats. They are solitary animals and receive cover from burrows they dig in sandy soil. Kangaroo rats may breed several times per year but once is normal. They normally have a litter size of four young. Population density has been reported between 13-19 individuals per hectare in creosote scrub populations (CDFG, 2005).

Kangaroo rat was chosen as a representative species for the following reasons:

- Kangaroo rats are a common herbivorous species present in desert habitats;
- Suitable habitat for kangaroo rat is available on the sites;
- It feeds on plants, which may bioaccumulate COPECs;
- COPEC bioaccumulation data are available for plants;
- It forages on the ground where intake of COPECs in the soil may occur;
- It is an important prey species for higher level trophic predators;
- Its burrows provide important cover for other animals; and
- Exposure parameters and toxicity information for small mammals are available.

Selection of Insectivorous Mammalian Receptor – The desert shrew is an insectivorous mammal that forages on the ground. There is little data on food preferences of the desert shrew in the wild, but in the laboratory food consumed included worms, grasshoppers, cockroaches, and other invertebrates (Hoffmeister and Goodpaster, 1962, as cited in CDFG, 2005). Additionally, other species of shrews are known to feed almost exclusively on invertebrates (Hamilton, 1941, Whitaker and Ferraro, 1963, both as cited in USEPA, 1993; Whitaker and Maser, 1976, as cited in CDFG, 2005). The desert shrew will drink water when available, but otherwise obtains water from food. This species occupies a wide variety of habitats, including desert wash, desert scrub, desert riparian, mixed chaparral, and pinyon-juniper habitats. Home range data are limited for shrews and are not available for the desert shrew. However, the home range of the dusky shrew, a similar species, averages 0.1 acre (CDFG, 2005).

The desert shrew was selected as a representative species for the following reasons:

- Desert shrews are a common insectivorous species present in desert habitats;
- Suitable habitat for desert shrew is available on the sites;
- It preys primarily on insects, which may accumulate COPECs;
- COPEC bioaccumulation data are available for invertebrates;
- It may be exposed to COPECs via incidental ingestion while foraging on the ground;
- It is an important prey species for higher level trophic predators;
- Exposure parameters are available or can be estimated from the available data from species with similar feeding habits; and
- Toxicity values for small mammals are readily available.

Selection of Carnivorous Mammalian Receptor – The desert kit fox is carnivorous, preying on black-tailed hare, desert cottontails, rodents, birds, and reptiles. They are residents of arid regions, and live in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. They dig dens in open, level areas of sandy soil. Kit fox dens/burrows on average range from 1.5 to 3 meters deep (Arjo, et al., 2003). Home range size has been reported as approximately 9.8 km^2 and 12.3 km^2, for females and males, respectively (Zoellick, 1992). Pups are born February through April with an average of four per litter.

The desert kit fox was chosen as a representative species for the following reasons:

- Desert kit fox are a protected fur-bearing species (i.e., hunting is regulated) in New Mexico;
- Desert kit fox are a common carnivorous species present in desert habitats;
- Suitable habitat for desert kit fox is available on the sites;
- It preys on small mammals, which may bioaccumulate COPECs;
- COPEC bioaccumulation data are available for small mammals;
- It plays an important role in providing cover for other species by its burrowing activity;
- Desert kit fox dens range from 1.5 to 3 meters deep and therefore are exposed to subsurface soil; and
- Toxicity data are available for larger mammals (e.g., dogs).

Indicator receptor exposure parameters are presented in Table E.2-24.

2.3.4.5.2 Bioaccumulation and Bioconcentration Factors

The processes of bioaccumulation and bioconcentration are important to an ERA because they provide a basis of prediction and discussion regarding the potential for constituent uptake into flora and fauna. Constituents in tissues of organisms in the food chain are likely to be ingested by the species which feed on them (i.e., those occupying higher trophic levels), the result of which may be the expression of toxicological effects by the higher trophic level species.

Bioaccumulation and bioconcentration factors used for the food chain modeling are obtained from literature sources such as Sample, et al., 1997; Baes, et al., 1984; Travis and Arms, 1988; Belfroid, et al., 1994; Belfroid, et al., 1995; Beyer, 1990; Beyer, et al., 1996; and other related literature, and are presented in Table E.2-26.

If a bioaccumulation factor (BAF) or bioconcentration factor (BCF) obtained from the literature was in dry weight, it was converted to wet weight in the estimated ingestion

calculation using the following conversion factors: 0.167 for invertebrates; 0.12 for plants and 0.32 for mammals.

*BAF (wet weight) = BAF (dry weight) * Conversion Factor*

2.3.4.5.3 Food Chain Ingestion Modeling

Food chain ingestion-based exposure calculations were performed for the identified representative receptor species to characterize potential exposures to constituents via the food chain and to identify potential adverse effects for wildlife at the sites. Ingestion modeling is based on species-specific exposure parameters and ingestion intake requirements. Arithmetic mean and UCL concentrations were used to evaluate the range of potential ingestion-based exposures. The use of mean concentrations is appropriate because birds and mammals are highly mobile and consume prey items containing varying levels of COPECs. The use of UCL concentrations is intended to represent, in effect, a reasonable maximum exposure estimate. The following model is used to calculate the ingestion based exposure for each indicator receptor:

$$\text{Ingestion (mg/kg - day)} = \left(\frac{\left\{ \left(P_{MEDIUM} \times C_{MEDIUM} \times (IR_M) \right) + \left(\left(P_{FOOD1} \times C_{FOOD1} \right) + \left(P_{FOOD2} \times C_{FOOD2} \right) \times (IR_F) \right) \right\} \times (SUF) \times (ED)}{BW} \right)$$

Where:

P_{MEDIUM} = Proportion of the diet comprised of the medium (unitless)

C_{MEDIUM} = Concentration of the constituent in the medium (mg/kg)

P_{FOOD1} = Proportion of the diet comprised of the first food item (unitless)

C_{FOOD1} = Concentration of the constituent in the first food item (mg/kg)

P_{FOOD2} = Proportion of the diet comprised of the second food item (unitless)

C_{FOOD2} = Concentration of the constituent in the second food item (mg/kg)

IR_F = Ingestion rate of food (kg/day)

IR_M = Ingestion rate of media (kg/day)

SUF = Site use factor (unitless)

ED = Exposure duration (unitless)

BW = Body weight of the organism (kg)

and:

C_{FOOD1} = C_{MEDIUM} x BAF_{FOOD1}

C_{FOOD2} = C_{MEDIUM} x BAF_{FOOD2}

BAF_{FOOD1} = Bioaccumulation factor for first food item (unitless)

BAF_{FOOD2} = Bioaccumulation factor for second food item (unitless)

2.3.4.5.4 Site Use Factor Approach

A site use factor (SUF) of 1 was employed in this ERA for the maximum scenarios under the assumption that the receptors obtain their entire diet from the SWMU evaluated. However, for the refined scenarios, SUFs were adjusted based on literature values for the foraging/home range of a measurement receptor. For several of the receptors (mourning dove, cactus wren, red-tailed hawk, desert kit fox), those home ranges are larger than the areas evaluated for each SWMU. SUFs calculations are represented by a simple ratio where the size of the affected area is divided by the size of the home or foraging range of the receptor. As a conservative measure in this report, the size of the affected area was based on the SWMU boundary. Table E.2-24 provides the home ranges obtained from the literature for each receptor. Table E.2-25 presents the calculated SUFs used in the refined scenarios for each SWMU. The approximate size of each SWMU is provided below:

SWMU	Size (acres)
SWMU 25	0.15
SWMU~~s~~ 27~~ to 30~~	2
SWMUs 31 and 32	0.15
SWMUs 33 and 34	0.16
SWMU 38 and 39	5.1
SWMU 141	1
SWMU 142	--

SWMU	Size (acres)
SWMU 143	0.07
SWMU 144	0.06
SWMU 145	0.14
SWMU 146	1
SWMU 147	0.005
SWMU 148	0.14
SWMU 149	0.05
SWMU 150	0.3
SWMUs 151 and 152	0.14
SWMU 154	0.2

2.3.4.5.5 Ecotoxicity Benchmarks and Extrapolation Approach

Modeling studies use constituent-specific toxicity reference values (TRVs) for the purpose of estimating risk. For the most part, TRVs are based on studies using laboratory species because toxicological studies have not been conducted on most wildlife species. TRVs are available from a variety of sources such as USEPA (2009b; 2005c); Sample, et al., (1996 and 1997); ATSDR, and many constituent-specific scientific sources and publications. Toxicological benchmarks are typically reported as no observed adverse effect levels (NOAELs) and lowest observed adverse effect levels (LOAELs). Both NOAELS and LOAELs for each COPEC are used in the food chain modeling so that a range of predicted food chain impacts can be evaluated. A list of ecotoxicity values for the specific COPECs associated with the site are provided in the site-specific BERA and presented in Tables E.2-27 and E.2-28. These ecotoxicity values will vary depending on the species, as described below.

Toxicity values must be carefully selected, and may require mathematical adjustment in order to represent the species selected for a site. In order to have a toxicity value representative of specific mammalian wildlife species rather than a mammalian laboratory species, an extrapolation (i.e., a mathematical formula based on differences in body weights) will likely be needed (Sample, et al., 1997). The extrapolation is necessary because the laboratory mammalian species and wildlife species are of varying sizes.

A generic approach for modeling a constituent-specific reference toxicity value for the purpose of estimating risk to a generic mammalian “wildlife species,” is shown below (Sample, et al., 1996):

$$NOAEL_{\text{Wildlife Species}} = NOAEL_{\text{Test Species}} \times \left[\frac{BW_{\text{TestSpecies}}}{BW_{\text{WildlifeSpecies}}} \right]^{\frac{1}{4}}$$

Where:

$NOAEL_{\text{Wildlife Species}}$	=	NOAEL for the wildlife species (i.e., the TRV)
$NOAEL_{\text{Test Species}}$	=	NOAEL for the laboratory test species (i.e., the toxicological benchmark)
$BW_{\text{Test Species}}$	=	Body weight of the laboratory test species
$BW_{\text{Wildlife Species}}$	=	Body weight of the wildlife species

No body size scaling extrapolation was applied to toxicity values obtained from USEPA EcoSSL guidance (2005c) since those values are derived using multiple mammal test species.

Toxicity values for birds are not typically extrapolated, regardless of the laboratory test species (Sample, et al., 1996). For example, the NOAEL for a laboratory bird (e.g., a mallard duck) would be used exactly to represent a NOAEL for the cactus wren.

2.3.4.5.6 Risk Characterization

The risk characterizations in Step 3a are based on HQs generated for direct contact COPECs using screening ecotoxicity values and HQs for bioaccumulative COPECs based on food chain modeling. In addition, the HQs are also considered within the context of weight-of-evidence and ecological significance of the risk estimates.

A weight-of-evidence approach is a means to evaluate the value of the information provided by measurement endpoints and observations made about a site (Menzie, et al., 1996). This approach is particularly useful when conflicting predictions of risk are obtained. The weight of evidence provided by the HQs and field observations are evaluated to make conclusions regarding risk characterization.

The USEPA provides information on issues related to evaluating the ecological significance of risk estimates (USEPA, 1994). This information includes a general flowchart of considerations that leads to the identification of ecologically significant impacts, and to the identification of those that are not ecologically significant. These

considerations include the spatial extent of the release, the persistence of the release (i.e., the temporal scale), and natural variability within the system (and whether impacts can be measured separate from natural variability). This type of analysis is used in conjunction with the HQs to evaluate whether predicted impacts (if any) are considered ecologically significant.

2.3.4.6 Refinement of Uncertainties

Uncertainties are addressed on several occasions throughout the BERA and are presented in Table E.2-23. As appropriate and needed, the uncertainties are ~~reevaluated~~re-evaluated as they relate to the BERA conclusions (USEPA, 2000b).

2.3.5 Scientific Management Decision Point and Reporting

As was previously mentioned (and highlighted on Figure 2-3), the first SMDP is purposefully flexible per the USEPA paradigm to occur after either Step 2 or Step 3a, depending on the results obtained during Step 2. The purpose of the flexibility of the first SMDP is so that additional evaluation of risks can occur and reporting streamlined into a single report, if desired, as described below.

The following courses of action are evaluated at the end of Step 3a for each site:

1. There is adequate information to conclude that ecological risks are unlikely or not ecologically significant and no further action is warranted.

2. The information is not adequate to make a decision at this point. The ecological risk assessment process will continue to Step 3b.

3. Remedial actions were considered for the media and constituents that are identified at the end of Step 3a to determine if cost effective actions can be implemented to reduce or prevent risks to wildlife.

One of these three outcomes is recommended for each site and all ecological risk assessment activities, including SMDPs, are presented at the end of each risk assessment section.

3. SWMU 25

3.1 Site Description and History

SWMU 25 is an asphalt-paved fenced area located northwest of and extending to the southern edge of the cleaning facility (SWMU 142) in the HELSTF. The area of SWMU 25 measures 50 ft by 100 ft. The accumulation area received spent degreasing solvents that contained 1,1,1-TCA and waste oils from the cleaning facility (A.T. Kearney, 1988).

This area was used for storing 55-gallon drums containing spent degreasing solvents. Drums were staged on pallets and wastes were reported to have been stored for less than 90 days. Operation of this area began in 1984 and continued through 1990. During 2001 and 2002 the area was used as a sorting yard for wastes pending characterization and a storage area for non-hazardous waste.

3.2 Risk Assessment Data Set Evaluation

Data generated from the site characterization activities were used in the risk assessment. The risk assessment data set for soil collected from SWMU 25 was compiled, summarized, and statistically analyzed using methods described in Section 2. The risk assessment data set summarizes the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, location of maximum detected concentration, minimum and maximum reporting limits, and upper confidence limit on the mean, and is presented in Table E.3.Data-1.

3.2.1 Surface Soil (0-2 ft bgs)

Soil samples in the 0 to 2 foot depth interval were not required to be collected at SWMU 25 as part of the Phase I, II, or III RFI investigations. As a result, analytical results are not available for the surface soil data set.

3.2.2 Combined Surface and Subsurface Soil (0-10 ft bgs)

Soil samples in the 0 to 10 foot depth interval were not required to be collected at SWMU 25 as part of the Phase I, II, or III RFI investigations. As a result, analytical results are not available for the combined surface and subsurface soil data set.

3.2.3 Total Soil (0 to 75 ft bgs)

Seven soil samples were collected in the 0 to 75 foot depth interval as part of the 1997 and 2006 investigations. Analytical results for these soil samples are summarized in Table E.3.Data-1. Total soil was analyzed for VOCs, SVOCs, PAHs, TPH, and inorganics. Three VOCs, one PAH, TPH, and two inorganics were detected within this data set.

3.2.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water does not exist at SWMU 25, and as a result, no soil water samples were collected from this site.

3.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples collected from SWMU 25. The risk assessment approach was described in Section 2.2 of this appendix.

3.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration ~~[~~(represented by the maximum reported concentration as an initial step~~]~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices

less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

3.3.1.1 Surface Soil

Surface soil samples (0-2 ft bgs) were not collected at SWMU 25. Therefore, no COPCs were selected for surface soil at SWMU 25.

3.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil samples (0-10 ft bgs) were not collected at SWMU 25. Therefore, no COPCs were selected for combined surface and subsurface soil at SWMU 25.

3.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Table E.3.HHRA-1 presents the selection of the total soil COPCs for the HHRA. As summarized in Table E.3.HHRA-1, the following four constituents were identified as COPCs for the vapor intrusion evaluation: n-butylbenzene, sec-butylbenzene, isopropylbenzene, and naphthalene.

3.3.2 Summary of Selected Constituents of Potential Concern

Three VOCs and one PAH were identified as COPCs for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

3.3.3 Determination of Exposure Point Concentrations

Four volatile constituents were selected as COPCs in total soil because no screening levels for the vapor intrusion pathway were available. The EPCs for these COPCs are summarized in Table E.3.HHRA-2.

3.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Volatile COPCs for total soil were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 25 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 25. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 25 are summarized in the tables and subsections below.

3.3.4.1 Future Site Worker - Vapor Intrusion Scenario

A future site worker could be present at SWMU 25, and could be exposed to VOCs in total soil via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.3-HHRA-3 through E.3-HHRA-4). ~~-~~The ELCR and HI for site worker exposure to indoor air are presented in Tables E.3.HHRA-6.

The total cumulative ELCR for site workers exposed to indoor air at SWMU 25 ~~is 2×10^{-6}, which is within the acceptable target risk range of 1×10^{-6} to 1×10^{-4}~~could not be calculated because the COPCs selected were either not classified as carcinogens or toxicity values associated with carcinogenic effects for inhalation were not available. The total cumulative HI for site workers is ~~0.06~~0.02, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

3.3.4.2 Hypothetical Future Residents - Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 25 and could be exposed to VOCs in total soil via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Table E.3.HHRA-7.

The total cumulative ELCR for a hypothetical age-adjusted future resident exposed to indoor air at SWMU 25 could not be calculated because the COPCs selected were either not classified as carcinogens or toxicity values associated with carcinogenic effects for inhalation were not available.~~is 5×10^{-6}, which is within the acceptable target risk range of 1×10^{-6} to 1×10^{-4}.~~ The total cumulative HI for a hypothetical future child resident is ~~0.2~~0.1, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

3.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. No additional site-specific uncertainties were identified for SWMU 25.

3.3.6 Human Health Risk Summary

3.3.6.1 Soil Exposure Scenarios

No surface soil (0 to 2 ft bgs) or combined surface and subsurface soil (0 to 10 ft bgs) data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to soil at SWMU 25 by site workers or future residents is not expected to represent an exposure concern.

3.3.6.2 Vapor Intrusion Scenarios

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway. As summarized in Table E.3.HHRA-8, the total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are within the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

3.3.6.3 Overall HHRA Summary

The HHRA for SWMU 25 indicates that current and future industrial use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and noncancer hazards. The evaluation also indicates that potential future residential redevelopment of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and noncancer hazards. Based on these results, additional risk assessment is not warranted for SWMU 25.

3.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 25. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 25, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 25; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 25 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 25; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 25. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

3.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI Report, SWMU 25 was a waste accumulation area located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 25 encompasses an area less than 0.5 acre. It was used for storing 55-gallon drums containing spent degreasing solvents from 1984 through 1990. During 2001 and 2002, the area was used as a sorting yard for wastes pending characterization and a storage area for non-hazardous waste. Currently the area has an asphalt paved surface. This section describes the habitat at SWMU 25. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMU 25 is a former waste accumulation area that is currently paved with asphalt. It is bounded by Building 26132 (Chemistry Laboratory) to the east, a small storage building to the north, a small building and an open area to the south, and an open area to the west. SWMU 25 is surrounded by a chain-link fence.

Terrestrial Habitat

No significant terrestrial habitat occurs within SWMU 25. The entire site is fenced and covered with asphalt. A thin strip of opportunistic weeds surround the area. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 25 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., asphalt), SWMU 25 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

3.4.2 Selection of Constituents of Potential Ecological Concern

Surface soil and combined surface and subsurface soil samples were not required to be collected at SWMU 25 as part of the Phase I, II, or III RFI investigations. Therefore, no COPECs were identified for the site indicating that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMU 25 is warranted.

3.5 SWMU 25 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, and total soil for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

No surface soil or combined surface and subsurface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to surface soil and subsurface soil at SWMU 25 by site workers or future residents is not expected to represent an exposure concern.

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below or within the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

As discussed previously, surface soil and combined surface and subsurface soil data were not collected at SWMU 25. Therefore, soil is not considered a medium of concern for terrestrial wildlife that may access the site and no further ecological evaluation at SWMU 25 is warranted.

There are no adverse environmental impacts associated with SWMU 25 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

4. SWMU~~s~~ 27~~, 28, 29 and 30~~

4.1 Site Description and History

SWMU 27 consists of ~~F~~four large sanitary treatment impoundments ~~(SWMUs 27, 28, 29 and 30) are~~ located on the east side of the HELSTF. These impoundments replaced two previous unlined impoundments in the early 1980s. Each of the impoundments is a polyethylene-lined cell surrounded by earthen berms. ~~SWMUs 27 and 28 are interconnected by a narrow inlet and have a total operating volume of 1.3 million gallons. SWMUs 29 and 30 are also interconnected by a narrow inlet and have a total operating volume of 2.3 million gallons.~~ SWMU~~s~~ 27 ~~, 28, 29 and 30~~ formerly received sanitary wastewater and surface run-off from the HELSTF. As part of the system operation, biological degradation was maintained by aeration and extended residence. Evaporation was accelerated by spraying and sludge was occasionally removed and disposed of in a landfill (A.T. Kearney, 1988). The units were taken out of service in 2008 when newly constructed lagoons were placed into service.

4.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. As a conservative measure, sludge samples collected in 2008 and 2009 from the site were also included in the soil data set. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), ~~and~~ the Phase III RFI (WSMR, 2008). Data collected from the impoundment in 2009 was also used in the evaluation. The risk assessment data set ~~for saturated vadose zone soil water~~ for SWMU~~s~~ 27 ~~, 28, 29, and 30~~ was compiled, summarized, and statistically analyzed per methods described in Section 2. The risk assessment data set summarizes the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and is presented in Tables E.4.Data-1 through E.4.Data-4.

4.2.1 Surface Soil (0 to 2 ft bgs)

Sixty-four soil and sludge samples were collected in the 0 to 2 foot depth interval as part of the March 2008 and December 2009 investigations. Analytical results for these soil and sludge samples are summarized in Table E.4.Data-1. Surface soil and sludge

was analyzed for ~~volatile organic compounds (~~VOCs~~)~~, ~~semi-volatile organic compounds (~~SVOCs~~)~~, ~~polycyclic aromatic hydrocarbons (~~PAHs~~)~~, herbicides, explosives, and inorganics. Five VOCs, two SVOCs, two PAHs and fourteen inorganics were detected within this data set.

~~Soil samples in the 0 to 2 foot depth interval were not required to be collected at SWMUs 27, 28, 29, or 30 as part of the Phase I, II, or III RFI investigations. As a result, analytical results are not available for the surface soil data set.~~

4.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Sixty-four soil and sludge samples were collected in the 0 to 10 foot depth interval as part of the March 2008 and December 2009 investigations. Because samples were collected no deeper than 2 feet bgs, the combined surface and subsurface soil and sludge data set is the same as the surface soil and sludge data set. Analytical results for these soil and sludge samples are summarized in Table E.4.Data-2.

~~Soil samples in the 0 to 10 foot depth interval were not required to be collected at SWMUs 27, 28, 29, or 30 as part of the Phase I, II, or III RFI investigations. As a result, analytical results are not available for the combined surface and subsurface soil data set.~~

4.2.3 Total Soil (0 to 19 ft bgs)

~~Sixty-four soil and sludge samples were collected in the total soil depth interval as part of the 2008 and 2009 investigations.~~As described above,~~–~~ ~~B~~because samples were collected no deeper than 2 feet bgs, the total soil and sludge data set is the same as the surface soil and sludge data set~~ set and combined surface and subsurface soil and sludge data set~~. Analytical results for these soil and sludge samples are summarized in Table E.4.Data-3.

~~Soil samples in the 0 to 19 foot depth interval were not required to be collected at SWMUs 27, 28, 29, or 30 as part of the Phase I, II, or III RFI investigations. As a result, analytical results are not available for the total soil data set.~~

4.2.4 Saturated Vadose Zone Soil Water

Twenty-six saturated vadose zone soil water samples, including three duplicate samples, were collected as part of the 2004, 2005, 2006, 2007, and 2008

investigations. Analytical results for these soil water samples are summarized in Table E.4.Data-4~~1~~. Soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Three VOCs and fifteen inorganics were detected within this data set.

4.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and sludge and saturated vadose zone soil water~~soil~~ samples collected from SWMU~~s~~ 27~~, 28, 29 and 30~~. The risk assessment approach was described in Section 2.2 of this appendix.

4.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~(~~represented by the maximum reported concentration as an initial step)~~),~~ and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the~~

~~maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

4.3.1.1 Surface Soil

The maximum concentrations of constituents in surface soil and sludge (0 to 2 ft bgs) at SWMU 27 were compared to the residential and industrial SSLs. The total screening risks for carcinogenic effects were 5 x 10^{-6} and 1 x 10^{-6} for residential and industrial scenarios, respectively. These total risks are less than the NMED target risk of 1 x 10^{-5}. The total screening hazard indices for non-carcinogenic effects were 0.6 and 0.06 for residential and industrial scenarios, respectively. These total hazard indices are less than the NMED target hazard index of 1.

As summarized in Table E.4.HHRA-1, no COPCs were identified for surface soil and sludge at SWMU 27. This indicates that the constituent concentrations in surface soil and sludge at SWMU 27 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil and sludge at SWMU 27 is not evaluated further in this HHRA.

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~~*4.3.1.1*~~*4.3.1.2 Combined Surface and Subsurface Soil*

Combined surface and subsurface soil and sludge COPCs were selected by comparing the analytical data with the appropriate screening levels. Table E.4.HHRA-2 presents the selection of the combined surface and subsurface soil and sludge COPCs for the HHRA.

The maximum concentrations of constituents in surface and subsurface soil and sludge (0 to 10 feet bgs) at SWMU 27 were compared to the construction worker SSLs. The total screening risk for carcinogenic effects was 1 x 10^{-10}. This total risk is less than the NMED target risk of 1 x 10^{-5}. The total screening hazard index for non-carcinogenic effects was 0.2 for the construction worker scenario. This total hazard index is less than the NMED target hazard index of 1.

As summarized in Table E.4-HHRA-2, no COPCs were identified for combined surface and subsurface soil and sludge at SWMU 27. This indicates that the constituent concentrations in surface and subsurface soil and sludge at SWMU 27 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential

exposure to surface and subsurface soil and sludge at SWMU 27is not evaluated further in this HHRA.

~~Combined surface and subsurface soil samples (0-10 ft bgs) were not collected at SWMUs 27, 28, 29 and 30. Therefore, no COPCs were selected for combined surface and subsurface soil at SWMUs 27, 28, 29 and 30.~~

~~4.3.1.2~~4.3.1.3 Total Soil

All detected VOCs in total soil and sludge (i.e., vadose zone) were selected as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Table E.4.HHRA-3 presents the selection of the total soil and sludge COPCs for the HHRA. As summarized in Table E.4.HHRA-3, the following seven constituents were identified as COPCs for the vapor intrusion evaluation: acetone, 2-butanone, carbon disulfide, 1,1-dichloroethane, methylene chloride, 1-methylnaphthalene, and phenanthrene.

~~Total soil samples (0-19 ft bgs) were not collected at SWMUs 27, 28, 29 and 30. Therefore, no COPCs were selected for total soil at SWMUs 27, 28, 29 and 30.~~

~~4.3.1.3~~4.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.4-HHRA-~~1~~ 4 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.4-HHRA-4~~1~~, the total screening risk and total screening hazard index for carcinogenic and non-carcinogenic effects were 2 x 10^{-7} and 0.03, respectively at SWMU 27. This total screening risk is less than the NMED target risk of 1 x 10^{-5} and the total screening hazard index is less than the NMED target hazard index of 1.

~~the total ratios of maximum concentrations to vapor intrusion screening levels for carcinogenic and non-carcinogenic effects were 0.02 and 0.03, respectively at SWMUs 27, 28, 29 and 30. The total ratios are less than the NMED target ratio of 1.~~

As summarized in Table E.4.HHRA-~~1~~4, no COPCs were identified for saturated vadose zone soil water at SWMU~~s~~ 27~~, 28, 29 and 30~~. This indicates that the constituent concentrations in the saturated vadose zone soil water at SWMU~~s~~ 27 ~~, 28, 29 and 30~~ are unlikely to result in adverse health impacts to future site workers and hypothetical future residents. Therefore, potential exposure to indoor air due to volatile

compounds in saturated vadose zone soil water at SWMU~~s~~ 27~~, 28, 29 and 30~~ is not evaluated further in this HHRA.

SWMU~~s~~ 27~~, 28, 29, and 30~~

4.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil and sludge, combined surface and subsurface soil and sludge, or saturated vadose zone soil water at SWMU 27. Seven COPCs (acetone, 2-butanone, carbon disulfide, 1,1-dichloroethane, methylene chloride, 1-methylnaphthalene and phenanthrene) were selected for total soil and sludge to evaluate inhalation via vapor migration into a hypothetical future building.

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~~No COPCs were selected for surface soil or combined surface and subsurface soil for direct contact.~~

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4.3.3 Determination of Exposure Point Concentrations

Seven volatile constituents were selected as COPCs in total soil because no screening levels for the vapor intrusion pathway were available. The EPCs for these COPCs are summarized in Table E.4.HHRA-5.

4.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Volatile COPCs for total soil were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 27 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 27. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 27 are summarized in the tables and subsections below.

4.3.4.1 Future Site Worker - Vapor Intrusion Scenario

A future site worker could be present at SWMU 27, and could be exposed to VOCs in total soil via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.4-HHRA-6 through E.4-HHRA-7). The ELCR and HI for site worker exposure to indoor air are presented in Tables E.4.HHRA-9.

The total cumulative ELCR for site workers exposed to indoor air at SWMU 27 is 5 x 10~~E~~$^{-8}$, which is below the target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total cumulative HI for site workers is 0.0004, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

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4.3.4.2 Hypothetical Future Residents - Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 27 and could be exposed to VOCs in total soil via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Table E.4.HHRA-10.

The total cumulative ELCR for a hypothetical age-adjusted future resident exposed to indoor air at SWMU 27 is 3 x 10~~E~~$^{-7}$, which is below the target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total cumulative HI for a hypothetical future child resident is 0.002, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.~~No COPCs were selected for total soil and saturated vadose zone soil water to evaluate inhalation via vapor migration into a hypothetical future building.~~

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~~4.3.3~~4.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

Nine SVOCs (4-aminobiphenyl, benzidine, 3,3-dichlorobenzidine, 2,4-dinitrotoluene, diphenylhydrazine, hexachlorobenzene, 4,6-dinitro-2-methylphenol, 2-naphthylamine, n-nitrosopiperidine), five PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, 7,12-dimethylbenz(a)anthracene, indeno(1,2,3-cd)pyrene) and one inorganic (thallium) were not detected in the soil and sludge, but had some SQLs greater than the screening values. In addition, one SVOC (n-nitrosodi-n-butylamine) was not detected in the saturated vadose zone soil water, but had some SQLs greater than the screening values. Because these constituents were not detected in any

sample collected from SWMU 27, it is not possible to conduct a quantitative evaluation. However, it is unlikely that their presence would have a significant effect on the overall outcome of the risk assessment.

~~One SVOC (n-Nitrosodi-n-butylamine) was not detected in the saturated vadose zone soil water, but had some SQLs greater than the screening values. Because n-nitrosodi-n-butylamine was not detected in any sample collected from SWMUs 27, 28, 29 and 30, it is not possible to conduct a quantitative evaluation. However, it is unlikely that its presence would have a significant effect on the overall outcome of the risk assessment.~~

~~4.3.4~~4.3.6 Human Health Risk Summary

~~4.3.4.1~~4.3.6.1 *Soil Exposure Scenarios*

In accordance with NMED guidance (NMED, 2009a), constituent concentrations in surface soil and sludge, and in combined surface and subsurface soil and sludge were compared to health-based screening levels and the calculated ratios summed and multiplied by $1x10^{-5}$ for carcinogens or by 1 for non-carcinogens. The total screening risks for carcinogenic effects were less than the NMED target risk of 1×10^{-5}. The total screening hazard indices were equal to or less than the NMED target hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil and sludge, or for combined surface and subsurface soil and sludge at SWMU 27. This demonstrates that the constituent concentrations in surface soil and sludge and in combined surface and subsurface soil and sludge at SWMU 27 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.~~Soil samples were not collected at SWMUs 27, 28, 29 and 30. Therefore, potential direct contact with surface and subsurface soil at SWMUs 27, 28, 29 and 30 is not evaluated in this HHRA because there are no complete soil exposure pathways.~~

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~~4.3.4.2~~4.3.6.2 Vapor Intrusion Scenarios

~~Soil samples were not collected at SWMUs 27, 28, 29 and 30; therefore no COPCs in vadose zone soil were identified for the vapor intrusion evaluation at SWMUs 27, 28, 29 and 30.~~

Three VOCs were detected in the shallow saturated vadose zone soil water. All detected VOCs in saturated vadose zone soil water were compared to the USEPA (2002a) groundwater screening levels for the protection of human health from vapor intrusion, and the calculated ratios summed and multiplied by $1x10^{-5}$ for carcinogens or by 1 for non-carcinogens. The total screening risk for carcinogenic effects was less than the NMED target risk of 1×10^{-5}. The total screening hazard index was less than the NMED target hazard index of 1. ~~. The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based screening levels, no COPCs were selected for saturated vadose zone soil water. This demonstrates that the constituent concentrations in saturated vadose zone soil water at SWMU~~s~~ 27 ~~, 28, 29 and 30~~ are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

All detected VOCs in total soil and sludge (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below or within the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

- Based on these results, additional human health risk assessment is not warranted for SWMU 27.

~~4.3.4.3~~4.3.6.3 Overall HHRA Summary

The HHRA for SWMU 27 indicates that current and future industrial use of the site would result in potential exposures that are ~~within or~~ below the regulatory benchmarks

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for cancer risks and noncancer hazards. The evaluation also indicates that potential future residential redevelopment of the site would result in potential exposures that are ~~within or~~ below the regulatory benchmarks for cancer risks and noncancer hazards. Based on these results, additional risk assessment is not warranted for SWMU 27.

~~Soil samples within the vadose zone were not collected at SWMUs 27, 28, 29 and 30. Therefore, potential direct contact with surface and subsurface soil at SWMUs 27, 28, 29 and 30 is not evaluated in this HHRA because there are no complete soil exposure pathways.~~

~~Additionally, no VOC COPCs were selected for saturated vadose zone soil water. This demonstrates that the constituent concentrations in saturated vadose zone soil water at SWMUs 27, 28, 29, and 30 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:~~

- ~~Future site workers; and~~
- ~~Future residents (adults and children).~~

~~Based on these results, additional human health risk assessment is not warranted for SWMUs 27, 28, 29 and 30.~~

4.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents in surface soil and combined surface and subsurface soil at SWMU~~s~~ 27~~, 28, 29 and 30~~. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU~~s~~ 27~~, 28, 29 and 30~~, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU~~s~~ 27~~, 28, 29 and 30~~; identifies the potential ecological exposure scenarios relevant to SWMU~~s~~ 27~~, 28, 29 and 30;~~ and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU~~s~~ 27~~, 28, 29 and 30~~. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

4.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI Report, SWMU~~s~~ 27~~, 28, 29 and 30~~ ~~are is~~consists of former effluent settling ponds located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU~~s~~ 27~~, 28, 29 and 30 are~~ is bounded by former ethylene glycol tanks to the south ~~(west of SWMU 30)~~, open areas to the east, a HELSTF road to the north and northeast, beyond which is SWMUs 151 and 152, and the main HESLTF facility to the west. ~~-~~The former settling ponds are surrounded by a barbed-wire fence.

This section describes the habitat at SWMU~~s~~ 27. ~~, 28, 29 and 30.~~ An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

The settling ponds are no longer active and were dry and devoid of vegetation during the site visit in March 2009. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU~~s~~ 27 ~~, 28, 29 and 30~~ are provided in Attachment B.

~~Combined,~~ SWMU~~s~~ 27~~, 28, 29 and 30~~ covers an area of approximately 2 acres. No significant terrestrial habitat occurs within SWMU~~s~~ 27~~, 28, 29 and 30~~. Sparse shrubs and opportunistic weeds occur along the berms of the ponds but are unlikely to support a diversity of wildlife.

4.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 27 are summarized below.

4.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.4-ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment.

As summarized in Table E.4-ERA-1, the eight following constituents were identified as COPECs in surface soil and sludge at SWMU 27: phenanthrene, antimony, cadmium, copper, lead, mercury, selenium, and zinc.

4.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.4.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.4.ERA-2, the eight following constituents were identified as COPECs in combined surface and subsurface soil and sludge at SWMU 27: phenanthrene, antimony, cadmium, copper, lead, mercury, selenium, and zinc.

4.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPECs identified in the SLERA were re-evaluated for the surface soil and combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Table E.4.ERA-3 and E.4.ERA-4). Since phenanthrene, copper, selenium, and zinc are bioaccumulative, they were carried forward into the food chain models. The results of the refined HQ calculations for SWMU 27 are summarized in the subsections below.

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4.4.3.1 Surface Soil

Eight COPECs (phenanthrene, antimony, cadmium, copper, lead, mercury, selenium, and zinc) in surface soil and sludge were carried forward into the BERA. UCLs were calculated for all surface soil and sludge COPECs with the exception of phenanthrene, antimony, and selenium. Due to the low number of detections, a UCL was not calculated for these COPECs; therefore, the refined EPC for phenanthrene, antimony, and selenium equals the maximum detection and the refined HQ is greater than 1. For all other COPECs the UCL is the EPC. When the refined EPCs for cadmium (0.28

mg/kg), lead (9.3 mg/kg) and mercury (0.108 mg/kg) were compared to their applicable ESLs (0.36 mg/kg, 11 mg/kg, and 0.1 mg/kg, respectively), the refined HQs were less than 1. Therefore, cadmium, lead and mercury were not further evaluated in this ERA. The BERA results for the surface soil and sludge COPECs at SWMU 27 are presented in Table E.4.ERA-3 and are discussed below:

Phenanthrene – Phenanthrene was detected in 1 of 40 samples. An HQ of 5 was calculated using the maximum detected concentration of 0.53 mg/kg and the USEPA Region 4 ESV (0.1 mg/kg). An HQ of 0.01 was calculated using the maximum concentration and the Region 5 ESL of 46 mg/kg. The Region 4 ESV is based on detection limits, rather than observed toxic effects (USEPA, 2000b~~a~~; Beyer, 1990), while the Region 5 ESL is based on potential toxicological effects for the masked shrew using conservative exposure and toxicological assumptions. As such, the Region 5 ESL is protective and provides more meaningful information regarding the likelihood for adverse impacts than the Region 4 ESV. Furthermore, phenanthrene was detected at an extremely low detection frequency (i.e., 2.5%), and therefore the spatial extent of elevated phenanthrene at SWMU 27 is considered *de minimis*. Using the Region 5 ESL and the maximum detected concentration, the HQ for phenanthrene is less than 1 indicating that adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model, the calculated HQ values were all less than 1. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to phenanthrene at SWMU 27.

Antimony – One of ten surface soil and sludge samples reported a detected concentration (2.62 mg/kg) above the ESL (0.27 m/kg). This maximum concentration was reported for sample location LAG3-CS-002. Due to the low number of detections of antimony (1 of 10), the areal extent of samples containing antimony above its ESL is very limited. The calculated HQ of 10 is based on an USEPA Ecological Soil Screening Level (EcoSSL) for a mammalian ground insectivore (shrew) which was calculated assuming a diet of earthworms (USEPA, 2005d). EcoSSLs for carnivorous and herbivorous mammals range from 4.9 mg/kg to 10 mg/kg. Avian EcoSSLs for antimony are not available. For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994); therefore, the EcoSSL of 4.9 mg/kg (based on mammalian carnivore) may be more appropriate for the site. Using a screening level of 4.9 mg/kg and the maximum detected concentration, the HQ for antimony is less than 1 indicating that adverse ecological effects are unlikely if exposure was to occur. Based on these considerations, adverse impacts are not

expected for wildlife potentially exposed to antimony at SWMU 27 and antimony is not further evaluated in this ERA.

~~Cadmium – Two of fifty surface soil and sludge samples reported detected cadmium concentrations above the ESL (0.36 m/kg). As shown on Table E.4.ERA-3, the refined HQ using the EPC of 0.28 mg/kg (based on the UCL) and the ESL is 0.8 which is less than 1, indicating that adverse ecological effects are unlikely if exposure was to occur. Therefore, cadmium is not further evaluated in this ERA.~~

Copper – Two of ten surface soil and sludge samples reported a detected copper concentration above the ESL (28 m/kg) with the maximum concentration (330 mg/kg) reported for sample location LAG1-CS-002. The refined HQ based on the EPC of 203.3 mg/kg (UCL) and the ESL is 7. This calculated HQ of 7 is based on an USEPA Ecological Soil Screening Level (EcoSSL) for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 76 mg/kg to 1,600 mg/kg. Mammalian EcoSSLs for copper range from 49 mg/kg (based on insectivore diet of earthworms) to 1,100 mg/kg (herbivorous mammal). As mentioned above, for all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994); therefore, the EcoSSL of 76 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 76 mg/kg and the EPC of 203 mg/kg, the HQ for copper is 3. This number is elevated due to 1 sample which individually has an HQ greater than 1 (LAG1-CS-002). Based on the limited number of locations with HQs >1 (i.e., LAG1-CS-002), the *de minimis* area with elevated concentrations (i.e., area bounded by samples reporting low concentrations with HQs less than 1 is approximately 0.05 acre), and the conservativeness of the ESL, adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model, the calculated HQ values were all less than 1. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to copper at SWMU 27.

~~Lead – Two of fifty surface soil and sludge samples reported a detected lead concentration above the ESL (11 m/kg). The maximum concentration (62.5 mg/kg) was reported for sample location LAGN1-SL-05. However, as shown on Table E.4.ERA-3, the refined HQ using the EPC of 9.3 mg/kg (based on the UCL) and the ESL is 0.8 which is less than 1, indicating that adverse ecological effects are unlikely if exposure was to occur. Therefore, lead is not further evaluated in this ERA.~~

~~Mercury – Four of fifty surface soil and sludge samples reported detected mercury concentrations above the ESL (0.1 m/kg). However, as shown on Table E.4.ERA-3, the refined HQ using the EPC of 0.108 mg/kg (based on the UCL) and the conservative USEPA Region 4 ESL is 1, indicating that adverse ecological effects are unlikely if exposure was to occur. Therefore, mercury is not further evaluated in this ERA.~~

Selenium – Selenium was detected in 2 of 50 samples. An HQ of 4 was calculated using the maximum detected concentration of 2.33 mg/kg and the USEPA Eco SSL (0.52 mg/kg). Because of the low detection frequency (i.e., 4 percent), the spatial extent of elevated selenium at SWMU 27 is considered *de minimis*. Based on the limited number of locations with HQs >1 (i.e., LAGN2-SL-01 and LAGN3-SL-01), the *de minimis* area with elevated concentrations (i.e., 2 small areas bounded by samples reporting low concentrations with HQs less than 1 is approximately 0.2 acre), the low quality of habitat, and the conservativeness of the ESL, adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model, the calculated HQ values were all less than 1. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to selenium at SWMU 27.

Zinc – One of ten samples reported a detected zinc concentration above the ESL of 46 mg/kg with the maximum detected concentration (222 mg/kg) reported for sample LAG1-CS-002. The refined HQ, based on the EPC of 82.8 mg/kg (UCL) and the ESL, is 2. The calculated HQ of 2 is based on an EcoSSL (USEPA, 200~~6~~7d) for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 950 mg/kg to 30,000 mg/kg. Mammalian EcoSSLs for zinc range from 79 mg/kg (based on insectivore diet of earthworms) to 10,000 mg/kg (carnivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994); therefore, the EcoSSL of 950 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 950 mg/kg and the maximum detected concentration, the HQ for zinc is 0.2 indicating that adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model, the calculated HQ values were all less than 1. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to zinc at SWMU 27.

As discussed previously, phenanthrene, copper, selenium, and zinc were identified as bioaccumulative and are evaluated in the terrestrial food chain model presented in Section 7.4.4.

4.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

Because samples were collected no deeper than 2 feet bgs, the combined surface and subsurface soil and sludge data set is the same as the surface soil and sludge data set. Therefore, the refinement of risk calculations for direct contact COPECs for combined surface and subsurface soil and sludge (0 to 10 ft bgs) are the same as for surface soil and sludge, and will not be repeated here.

Phenanthrene, copper, selenium, and zinc were identified as bioaccumulative and evaluated were evaluated in the terrestrial food chain model for the kit fox[1] presented in Section 7.4.4.

4.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 27 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The bioaccumulative COPECs identified in soil (i.e., phenanthrene, copper, selenium, and zinc) were evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

4.4.4.1 Terrestrial Food Chain Models

As summarized in Tables E.4.ERA-20 and E.4.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, cactus wren, red-tailed hawk, Merriam's kangaroo rat, and desert kit fox exposed to phenanthrene, copper, selenium, and zinc in surface soil and sludge and combined surface and subsurface soil and sludge were all less than or equal to 1.

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The refined scenario LOAEL and NOAEL HQs for the desert shrew exposed to selenium in surface soil and sludge were 0.3 and 3, respectively. If only the NOAEL

[1] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

HQs were considered, then these results would suggest the potential for adverse impacts to insectivorous mammal receptors may occur if all exposure assumptions are met. However, the NOAEL, by definition, is a very conservative screening criterion. The LOAEL indicates a concentration above which adverse impacts to individual receptors may occur. While the HQs calculated using the conservative NOAELs are greater than 1, these HQs likely overestimate the exposures to desert shrew (and other insectivorous mammals), and likely overestimate the toxicity of selenium to these populations. Considering the LOAEL HQs (a more realistic indicator of toxicity) for a desert shrew are all less than 1, and that the spatial extent of affected soil is small (2 of 50 sludge samples reported a detected concentration), ecological effects are unlikely if exposure to SWMU 27 surface soil and sludge were to occur.

The refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to combined surface and subsurface soil and sludge were less than 1 for SWMU 27. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to COPECs, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil and sludge, if exposure to these bioaccumulative COPECs were to occur, then adverse effects are not expected for wildlife. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to selenium or silver in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil and sludge, if exposure to these bioaccumulative COPECs were to occur, then adverse effects are not expected for wildlife.

4.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Forty-three constituents, including three VOCs (i.e., chloroform, 2-chlorophenol, vinyl chloride); twenty-seven SVOCs (4-aminobiphenyl, aniline, bis(2-ethylhexyl)phthalate; 4-chloro-3-methylphenol, 3,3-dichlorobenzidine, 2,6-dichlorophenol, 2,4-dimethylphenol, 2,4-dinitrotoluene, diphenylamine, hexachlorobenzene, hexachlorocyclopentadiene, hexachloroethane, 4,6-dinitro-2-methylphenol, methyl

methanesulfonate, 1-naphthylamine, 2-naphthylamine, 3-nitroaniline, 2-nitrophenol, 4-nitrophenol, n-nitrosopiperidine, pentachlorobenzene, pentachlorophenol, phenacetin, pyridine, 1,2,4,5-tetrachlorobenzene, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol), ten PAHs (i.e., anthracene, benzo(a)anthracene, benzo[a]pyrene, benzo[b]fluoranthene, 1-chloronaphthalene, 2-chloronaphthalene, 7,12-dimethylbenz(a)anthracene, fluoranthene, 2-methylnaphthalene, and pyrene); one pesticide (pentachloronitrobenzene); one explosive (i.e., 2,6-dinitrotoluene); and one inorganic (thallium), were not detected, but had some SQLs greater than the screening values. Because these 43 constituents were not detected in any sample collected from SWMU 27, it is not possible to conduct a quantitative evaluation. The high SQLs are generally associated with a small subset of three borings analyzed in 2009, LAGN2-SL-2, LAGN2-SL-04, LAGN2-SL-05 located in SWMU 27. In concurrent soil samples collected from 0.3 to 2 feet bgs from these three borings, results are non-detect with SQLs comparable with the remaining samples. Multiple other borings at the site provide adequate spatial coverage of these COPECs (i.e., 40 samples analyzed for VOCs, SVOCs, PAHs, pesticides and explosives). Therefore, the SQLs associated with the data are considered a minor uncertainty in the risk assessment.

4.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 27. After the SLERA, eight constituents (i.e., phenanthrene, antimony, cadmium, copper, lead, mercury, selenium, and zinc) were selected as COPECs in surface soil and sludge and in combined surface and subsurface soil and sludge because their HQs were greater than 1. In the BERA, phenanthrene, copper, selenium, and zinc in surface soil and sludge and in combined surface and subsurface soil and sludge were retained for further evaluation in the food chain modeling since they were identified as bioaccumulative.

Tables E.4.ERA-20 and E.4.ERA-21 summarize the COPECs in surface soil and combined surface and subsurface soil and sludge that were carried through the BERA and evaluated in the terrestrial food chain model. Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil and sludge, if exposure to these bioaccumulative COPECs were to occur, then adverse effects are not expected for wildlife.

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~~Surface soil and combined surface and subsurface soil samples were not required to be collected at SWMUs 27, 28, 29 and 30 as part of the Phase I, II, or III RFI investigations. Therefore, no COPECs were identified for the site indicating that adverse impacts are unlikely to occur for ecological receptors potentially exposed to~~

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~~constituents in the soil. Therefore, no further ecological evaluation at SWMUs 27, 28, 29 and 30 is warranted.~~

4.5 SWMU~~s~~ 27~~, 28, 29 and 30~~ Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil and sludge, combined surface and subsurface soil and sludge, total soil and sludge, and vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, 2009a), constituent concentrations in surface soil and sludge and in combined surface and subsurface soil and sludge were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil and sludge or for combined surface and subsurface soil and sludge at SWMU 27. This demonstrates that the constituent concentrations in surface soil and sludge and in combined surface and subsurface soil and sludge at SWMU 27 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

Additionally, no VOC COPCs were selected for saturated vadose zone soil water. However, all the VOCs detected in total soil and sludge were selected as COPCs for the vapor intrusion evaluation. The findings of the vapor intrusion evaluation indicate that potential future industrial or residential development of the site would result in potential indoor air exposures that are below the regulatory benchmarks for cancer risks and non-cancer hazards.

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This demonstrates that the constituent concentrations in soil and sludge and saturated vadose zone soil water at SWMU 27are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

A SLERA and BERA were completed for SWMU 27 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and sludge and subsurface soil, and to conduct food chain modeling for the COPECs identified as bioaccumulative. The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil and sludge. Therefore, no further ecological evaluation of SWMU 27 is warranted.

There are no adverse environmental impacts associated with SWMU 27 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

~~A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.~~

~~Soil samples within the vadose zone were not required to be collected at SWMUs 27, 28, 29 and 30 as part of the Phase I, II, or III RFI investigations. Therefore, potential direct contact with surface and subsurface soil at SWMUs 27, 28, 29 and 30 is not evaluated in this HHRA because there are no complete soil exposure pathways.~~

~~No VOCs were selected as vapor intrusion COPCs in saturated vadose zone soil water. This demonstrates that the constituent concentrations in saturated vadose zone soil water at SWMUs 27, 28, 29 and 30 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:~~

- ~~Future site workers; and~~

- ~~Future residents (adults and children).~~

~~As discussed previously, surface soil and combined surface and subsurface soil data were not collected at SWMUs 27, 28, 29 and 30. Therefore, soil is not considered a medium of concern for terrestrial wildlife that may access the site and no further ecological evaluation at SWMUs 27, 28, 29 and 30 is warranted.~~

~~There are no adverse environmental impacts associated with SWMUs 27, 28, 29 and 30 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.~~

5. SWMUs 31 and 32

5.1 Site Description and History

The Chemical Waste Tanks were constructed in 1985 in the southeastern portion of the HELSTF and consisted of a west tank (SWMU 31) and an east tank (SWMU 32). The west tank, SWMU 31, was placed into use in late 1985 and was in operation until 1989.; tThe east tank, SWMU 32, was never used. The tanks were to be used for containment and evaporation treatment of chromated de-inonzied wastewater from the laser cooling system and hazardous waste generated at the HCF. The tanks were identical, above-grade, open-top, tanks constructed of reinforced concrete. Each had an industrial grade 45 mil Hypalon liner with a leak detection system and each contained a six-inch layer of ballast sand. The capacity of each tank was approximately 108,200 gallons.

The west tank (SWMU 31) and east tank (SWMU 32) were constructed during 1985. Wastes from the HCF sump (SWMU 142) were transferred to SWMU 31 via a double-walled pipe. SWMU 31 also received other wastes in that were transported by truck and dumped directly into the tank, including chromate wastes, Low Power Chemical Laser scrubbing water, chemistry lab wastes and potassium hydroxide wastes. SWMU 32 was never used according to facility records and reports.

Use of SWMU 31 was halted during 1989 when Freon 11 and 1,1,1-TCA were discovered in the leak detection port. The tanks were decontaminated and demolished in February 1992 in accordance with procedures specified within an approved closure plan (ASI, 1992).

5.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil data collected during multiple RFI phases. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil for SWMUs 31 and 32 were compiled, summarized, and statistically analyzed using methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, location of maximum detected concentration, minimum and maximum reporting limits, and the upper confidence limit

on the mean concentration and are presented in Tables E.5.Data-1 through E.5.Data-3.

5.2.1 Surface Soil (0 to 2 ft bgs)

Three soil samples were collected in the 0 to 2 foot depth interval as part of the 2006 investigation. Analytical results for these soil samples are summarized in Table E.5.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, and inorganics. Seven inorganics were detected within this data set.

5.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Three soil samples were collected in the 0 to 10 foot depth interval as part of the 2006 investigation. It should be noted that no additional data was collected from the 2 ft to 10 ft depth interval at SWMUs 31 and 32. Therefore, the combined surface and subsurface soil data set is identical to the surface soil data set. Analytical results for these soil samples are summarized in Table E.5.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, TPH, and inorganics. Seven inorganics were detected within this data set.

5.2.3 Total Soil (0 to 75 ft bgs)

Eighteen soil samples were collected in the 0 to 75 foot depth interval as part of the 2006 investigation. Analytical results for these soil samples are summarized in Table E.5.Data-3. Total Soil was analyzed for VOCs, SVOCs, PAHs, TPH, and inorganics. Nine inorganics were detected within this data set.

5.2.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water does not exist at SWMUs 31 and 32, and as a result, no soil water samples were collected from this site.

5.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples collected from SWMUs 31 and 32. The risk assessment approach was discussed in Section 2.2 of this appendix.

5.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~[~~represented by the maximum reported concentration as an initial step)~~]~~, and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

5.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.5.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 ft bgs) at SWMUs 31 and 32 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratio~~ screening risks for carcinogenic effects could not be calculated because no carcinogens were detected at SWMUs 31 and 32. The total ~~ratios~~ screening hazard indices for non-carcinogenic effects were ~~0.03~~0.02 and ~~0.006~~0.001 for residential and industrial scenarios, respectively. These total ~~ratios~~ screening hazard indices are less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.5.HHRA-1, no COPCs were identified for surface soil at SWMUs 31 and 32. This indicates that the constituent concentrations in surface soil at SWMUs 31 and 32 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMUs 31 and 32 is not evaluated further in this HHRA.

5.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method discussed previously. Table E.5.HHRA-2 presents the selection of the combined surface and subsurface soil COPCs for the HHRA.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMUs 31 and 32 were compared to the construction worker SSLs. The total screening risk~~s~~ for carcinogenic effects could not be calculated because no carcinogens were detected at SWMUs 31 and 32. The total ~~ratios~~ screening hazard index for ~~carcinogenic and~~ non-carcinogenic effects ~~were~~ was 0.1 ~~and 0.0009, respectively,~~ for the construction worker scenario. ~~These~~ This total ~~ratios~~ screening hazard index ~~are~~ is less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.5.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMUs 31 and 32. This indicates that the constituent concentrations in surface and subsurface soil at SWMUs 31 and 32 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to surface and subsurface soil at SWMUs 31 and 32 is not evaluated further in this HHRA.

5.3.1.3 Total Soil

As summarized in Table E.5.HHRA-3, no VOCs were detected in total soil; therefore no COPCs were identified for the vapor intrusion evaluation at SWMUs 31 and 32.

Additional evaluation of the potential for soil to represent a concern via vapor intrusion is not necessary in this HHRA.

5.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil, combined surface and subsurface soil, or total soil at SWMUs 31 and 32.

5.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5.

5.3.4 Human Health Risk Summary

5.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil~~,~~ and combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens..~~. Similarly, the calculated target hazard indices for non-carcinogenic effects were also summed.~~ The total screening risks for carcinogenic effects could not be calculated because no carcinogens were detected at SWMUs 31 and 32. The total screening hazard indices were less than the NMED target hazard index of 1. ~~ratios summed. The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, and combined surface and subsurface soil at SWMUs 31 and 32. This demonstrates that the constituent concentrations in surface soil~~,~~ and combined surface and subsurface soil at SWMUs 31 and 32 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

5.3.4.2 Vapor Intrusion Scenarios

No VOCs were detected in total soil; therefore no COPCs were identified for the vapor intrusion evaluation at SWMUs 31 and 32. This demonstrates that the constituent concentrations in soil at SWMUs 31 and 32 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

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5.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMUs 31 and 32. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 31 and 32 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Additionally, no VOCs were detected in soil, indicating that vapor intrusion is unlikely to result in adverse health impacts. Based on these results, additional human health risk assessment is not warranted for SWMUs 31 and 32.

5.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMUs 31 and 32. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMUs 31 and 32, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMUs 31 and 32; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMUs 31 and 32 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMUs 31 and 32; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological

exposure scenarios at SWMUs 31 and 32. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

5.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI Report, SWMUs 31 and 32 are former chemical waste tanks located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. This section describes the habitat at SWMUs 31 and 32. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMUs 31 and 32 are former hazardous waste tanks. They are bounded by settling ponds to the north and east (SWMU 28, SWMU 30), ethylene glycol tanks to the south (SWMUs 35 and 36), and an open area to the west. The settling pond and waste tanks are surrounded by a chain-link fence.

Terrestrial Habitat

Dense desert shrub habitat occurs within SWMUs 31 and 32. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMUs 31 and 32 are provided in Attachment B.

Combined, SWMUs 31 and 32 cover an area approximately 0.15 acre. Terrestrial habitat within SWMUs 31 and 32 consists of typical desert basin shrub vegetation found throughout the area (Attachment A). At the time of the ecological reconnaissance in March 2009, the average height of shrubs ranged from 2 to 5 feet. Shrubs identified within SWMUs 31 and 32 consisted primarily of 4-winged saltbush (*Atriplex canescens*). Other species identified within the SWMUs include sand dropseed grass *(Sporobolus nealii)* and salt cedar (*Tamarix spp.)* (Attachment 1). Grasses measured approximately 2 feet. The salt cedar did not cover a significant portion of the site.

The vegetation at SWMUs 31 and 32 appears to support a diversity of wildlife. In addition to many types of insects (winged and ground-level), abundant song birds were observed within SWMUs 31 and 32 and jackrabbits (*Lepus californicus*) were observed in the surrounding area during the ecological reconnaissance.

5.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMUs 31 and 32 are summarized below.

5.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.5-ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment.

The results of the data screening indicate that no COPECs were identified for surface soil at SWMUs 31 and 32.

5.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.5-ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

Since there is no data available from 2 ft to 10 ft bgs, the same dataset used for the 0 to 2 ft bgs surface soil is applicable for the surface and subsurface evaluation. Therefore, no COPECs were identified for combined surface and subsurface soil at SWMUs 31 and 32.

5.4.2.3 Summary of COPEC Selection

The available soil data (surface soil and combined surface and subsurface soil) for SWMUs 31 and 32 were compared with the appropriate ecological screening levels. No soil COPECs were identified for SWMUs 31 and 32. Based on these results, it has been determined that there is adequate information to conclude that current and future ecological risks are unlikely and no further action is warranted at SWMUs 31 and 32.

5.4.3 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Five constituents, including three VOCs (i.e., chloroform; 1,2-dibromo-3-chloropropane; and trichloroethylene), one SVOC (i.e., hexachloro-1,3-butadiene), and one inorganic (i.e., selenium), were not detected, but had some SQLs greater than the screening values. Because these five constituents were not detected in any sample collected from SWMUs 31 and 32, it is not possible to conduct a quantitative evaluation. However, it is unlikely that their presence would have a significant effect on the overall outcome of the risk assessment.

5.4.4 Ecological Risk Summary

A screening-level risk assessment was completed for SWMUs 31 and 32. Based on the analysis of available information, there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMUs 31 and 32 is warranted.

5.5 SWMUs 31 and 32 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, and total soil for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMUs 31 and 32. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 31 and 32 are unlikely to result in adverse

health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

No VOCs were detected in total soil; therefore no COPCs were identified for the vapor intrusion evaluation at SWMUs 31 and 32. This demonstrates that the constituent concentrations in soil at SWMUs 31 and 32 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

A SLERA was completed for SWMUs 31 and 32, to evaluate surface soil and subsurface soil for ecological receptors. The results of the SLERA indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMUs 31 and 32 is warranted.

There are no adverse environmental impacts associated with SWMUs 31 and 32 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

6. SWMUs 33 and 34

6.1 Site Description and History

SWMUs 33 and 34 consist of two 30 by 60 foot concrete tanks that extend 2 to 4 ft below grade. The tanks served as drying beds for fluorspar sludge that was generated by an emission control scrubber at the Pressure Recovery System (AOC-v).

The fluorspar tanks were constructed in 1984. The sludge is transported to the drying bed through a 4-inch polyvinyl chloride (PVC) pipe. The dried sludge was periodically collected and transported off site for disposal. These tanks were historically used once per week, but were used only once every three months up until 2009 (Reynolds, pers. comm. 2009). WSMR discontinued the use of the Laser System Pressure Recovery System and the SWMU 33 and 34 tanks in the spring of 2009 (Reynolds, pers. comm. 2009).

6.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil data collected during multiple RFI phases. The primary sources of the soil data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil for SWMUs 33 and 34 were compiled, summarized, and statistically analyzed using methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, location of maximum detected concentration, minimum and maximum reporting limits, and the upper confidence limit on the mean and are presented in Tables E.6.Data-1 through E.6.Data-2.

6.2.1 Surface Soil (0 to2 ft bgs)

Twelve soil samples were collected from around the tanks in the 0 to 2 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.6.Data-1. The samples were only analyzed for fluoride.

6.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Twelve soil samples were collected in the 0 to 10 foot depth interval as part of the 1992 investigation. Note that no additional samples were collected from the 2 ft to 10 ft depth interval at SWMUs 33 and 34. Therefore, the combined surface and subsurface data set is identical to the surface soil data set. Analytical results for these soil samples are summarized in Table E.6.Data-2. Surface and subsurface soil was only analyzed for fluoride.

6.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples collected from SWMUs 33 and 34. The risk assessment approach was discussed in Section 2.2 of this appendix.

6.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

6.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.6.HHRA-1 presents the results of the screening process.

Fluoride was the only constituent analyzed in surface soil (0 to 2 ft bgs) at SWMUs 33 and 34. The maximum concentration of fluoride in surface soil at SWMUs 33 and 34 was compared to the residential and industrial soil screening levels (SSLs). The total ~~ratios~~ screening hazard indices for non-carcinogenic effects were ~~0.0003~~0.0002 and ~~0.00002~~0.00001 for residential and industrial scenarios, respectively. These total ~~ratios~~ screening hazard indices are less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.6.HHRA-1, no COPCs were identified for surface soil at SWMUs 33 and 34. This indicates that the constituent concentrations in surface soil at SWMUs 33 and 34 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMUs 33 and 34 is not evaluated further in this HHRA.

6.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method. Table E.6.HHRA-2 presents the results of the screening process.

Fluoride was the only constituent analyzed in combined surface and subsurface soil (0 to 10 ft bgs) at SWMUs 33 and 34. The maximum concentration of fluoride in combined surface and subsurface soil at SWMUs 33 and 34 was compared to the construction worker SSL. The total ~~ratio~~ screening hazard index for non-carcinogenic effects was ~~0.00007~~0.00005 for the construction worker scenario. This total ~~ratio~~ hazard index is less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.6.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMUs 33 and 34. This indicates that the fluoride concentrations in combined surface and subsurface soil at SWMUs 33 and 34 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to combined surface and subsurface soil at SWMUs 33 and 34 is not evaluated further in this HHRA.

6.3.1.3 Total Soil

Fluoride was the only constituent analyzed at SWMUs 33 and 34; no VOCs were analyzed. Therefore, no COPCs were identified for total soil at SWMUs 33 and 34 and additional evaluation of the potential for soil to represent a concern via vapor intrusion is not necessary in this HHRA.

6.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil, combined surface and subsurface soil, or total soil at SWMUs 33 and 34.

6.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. No additional uncertainties were identified for SWMUs 33 and 34.

6.3.4 Human Health Risk Summary

6.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~. Similarly, the calculated target hazard indices for non-carcinogenic effects were also summed.~~ The total screening risk~~s~~ for carcinogenic effects could not be ~~calculated~~determined because no carcinogen~~s~~ic constituents were detected at SWMUs 33 and 34. The total screening hazard indices were less than the NMED target hazard index of 1. ~~ratios summed. The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMUs 33 and 34. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 33 and 34 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents; and
- Future construction workers.

6.3.4.2 Vapor Intrusion Scenarios

Since fluoride, a non-volatile inorganic, is the constituent of interest at SWMUs 33 and 34, no VOCs were analyzed in soil or in saturated vadose zone soil water; therefore no COPCs were identified for the vapor intrusion evaluation and this potential exposure pathway is incomplete at SWMUs 33 and 34.

6.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMUs 33 and 34. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 33 and 34 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Based on these results, additional human health risk assessment is not warranted for SWMUs 33 and 34.

6.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMUs 33 and 34. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMUs 33 and 34, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMUs 33 and 34; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMUs 33 and 34 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMUs 33 and 34; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMUs 33 and 34. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

6.4.1 Environmental Setting

As discussed in Section 6, SWMUs 33 and 34 are located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMUs 33 and 34 consist of currently empty concrete fluorspar tanks and encompass an area less than 0.5 acre. They are bounded by ethylene glycol tanks (SWMU 35 and 36) to the north, the STP dry pond (SWMU 146) to the south, and barren areas to the east and west. The entire area is surrounded by a chain-link fence.

This section describes the habitat at SWMUs 33 and 34. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

No significant terrestrial habitat occurs within SWMUs 33 and 34. The SWMUs consist of empty concrete fluorspar tanks. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMUs 33 and 34 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., cement), SWMUs 33 and 34 do not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

6.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMUs 33 and 34 are summarized below.

6.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.6.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment.

The results of the data screening indicate that no COPECs were identified for surface soil at SWMUs 33 and 34.

6.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.6.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

The results of the data screening indicate that no COPECs were identified for combined surface and subsurface soil at SWMUs 33 and 34.

6.4.2.3 Summary of COPEC Selection

The available soil data (surface soil and combined surface and subsurface soil) for SWMUs 33 and 34 were compared with the appropriate ecological screening levels. There are currently no completed exposure pathways for ecological receptors and no soil COPECs were identified for hypothetical future exposures at SWMUs 33 and 34. Based on these results, it has been determined that there is adequate information to conclude that current and future ecological risks are unlikely and no further action is warranted at SWMUs 33 and 34.

6.4.3 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. No site-specific uncertainties were identified for SWMUs 33 and 34.

6.4.4 Ecological Risk Summary

A screening-level risk assessment was completed for SWMUs 33 and 34. There are no completed exposure pathways for ecological receptors under current conditions and no COPECs were identified for potential future exposures to soil. Based on the analysis of available information, there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMUs 33 and 34 is warranted.

6.5 SWMUs 33 and 34 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, and total soil for site workers under current and future

land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMUs 33 and 34. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 33 and 34 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

No VOCs were detected in total soil; therefore no COPCs were identified for the vapor intrusion evaluation at SWMUs 33 and 34. This demonstrates that the constituent concentrations in soil at SWMUs 33 and 34 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

A SLERA was completed for SWMUs 33 and 34, to evaluate surface soil and subsurface soil for ecological receptors. The results of the SLERA indicate there is adequate information to conclude that there are no significant current exposures to soil, and future adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMUs 33 and 34 is warranted.

SWMUs 33 and 34

There are no adverse environmental impacts associated with SWMUs 33 and 34 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

7. SWMUs 38 and 39

7.1 Site Description and History

The Construction Landfills (SWMUs 38 and 39) are located northeast of the LSTC building in a flat grassland area. The exact width and depth of the units is not known. However, information obtained during a 1992 Geophysical Survey indicates that there were three separate abandoned landfill cells in the vicinity of SWMU 38 and two landfill cells in the SWMU 39 area.

Based upon a review of historical aerial photography, it is believed that the landfill was used as early as the 1960s until 1990. The landfill received construction debris from work performed in the HELSTF area, including wood, piping material, paper, and insulation.

7.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of the soil and saturated vadose zone soil water data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and vadose zone soil water for SWMUs 38 and 39 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.7.Data-1 through E.7.Data-4.

7.2.1 Surface Soil (0 to 2 ft bgs)

Seven soil samples, including one duplicate sample, were collected in the 0 to 2 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.7.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, and inorganics. Two inorganics were detected within this data set.

7.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Twenty-six soil samples, including four duplicate samples, were collected in the 0 to 10 foot depth interval as part of the 1992 and 1993 investigations. Analytical results for these soil samples are summarized in Table E.7.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC, one SVOC, TPH, and six inorganics were detected within this data set.

7.2.3 Total Soil (0 to 42 ft bgs)

Fifty-three soil samples, including four duplicate samples, were collected in the 0 to 42 foot depth interval as part of the 1992 and 1993 investigations. Analytical results for these soil samples are summarized in Table E.7.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC, one SVOC, TPH, and seven inorganics were detected within this data set.

7.2.4 Saturated Vadose Zone Soil Water

Eighteen saturated vadose zone soil water samples, including seven duplicate samples, were collected as part of the 2004, 2005, 2006, 2007, and 2008 investigations. Analytical results for these soil water samples are summarized in Table E.7.Data-4. Soil water was analyzed for VOCs, SVOCs, PAHs, herbicides, pesticides, TPH, explosives, and inorganics. Five VOCs, four SVOCs, three PAHs, and twenty-eight inorganics were detected within this data set.

7.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMUs 38 and 39. The risk assessment approach was discussed in Section 2.2 of this appendix.

7.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs

exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~(~~represented by the maximum reported concentration as an initial step~~)~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

7.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.7.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 feet bgs) at SWMUs 38 and 39 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratio~~ screening risks for carcinogenic effects could not be determined because no constituents contributing to the total carcinogenic effect ratio were detected at SWMUs 38 and 39. The total ~~ratios~~ screening hazard indices for non-

carcinogenic effects were ~~0.06~~0.005 and ~~0.03~~0.0004 for residential and industrial scenarios, respectively. These total ~~ratios~~ screening hazard indices are less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.7.HHRA-1, no COPCs were identified for surface soil at SWMUs 38 and 39. This indicates that the constituent concentrations in surface soil at SWMUs 38 and 39 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMUs 38 and 39 is not evaluated further in this HHRA.

7.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method. Table E.7.HHRA-2 presents the selection of the combined surface and subsurface soil COPCs for the HHRA.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMUs 38 and 39 were compared to the construction worker SSLs. The total ~~ratio~~ screening risk for carcinogenic effects could not be determined because no carcinogenic constituents ~~contributing to the total carcinogenic effect ratio~~ were detected. The total ~~ratio~~ screening hazard index for non-carcinogenic effects was ~~0.2~~0.3 for the construction worker scenario. This total ~~ratio~~ screening hazard index is less than the NMED target ~~ratio~~ hazard index of 1 for non-carcinogenic effects.

As summarized in Table E.7.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMUs 38 and 39. This indicates that the constituent concentrations in surface and subsurface soil at SWMUs 38 and 39 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to surface and subsurface soil at SWMUs 38 and 39 is not evaluated further in this HHRA.

7.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were considered for selection as COPCs for the vapor intrusion evaluation because there are no~~t~~ NMED or USEPA soil screening levels for the vapor intrusion pathway. Acetone was the only VOC detected in total soil. Acetone is a common laboratory contaminant. As discussed in Section 2.1 (Risk Assessment Data Sets), an analysis of the concentrations for this common laboratory contaminant was conducted. The analysis for this data set revealed there is

no evidence that this constituent was associated with historical operations at SWMUs 38 and 39 and the detected concentrations were less than 10 times the reported sample quantitation limit for the individual samples. Therefore, acetone was eliminated from further consideration, and no COPCs were identified for total soil (vadose zone). Potential exposure to vapors in indoor air from volatile compounds in soil is not evaluated further in this HHRA because no COPCs were identified (Table E.7.HHRA-3).

7.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.7.HHRA-4 and Table E.7.HHRA-5 present the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.7.HHRA-4, the total ~~ratios~~ screening risk ~~of maximum concentrations to screening levels~~ for carcinogenic effects was 2×10^{-5} and the total screening hazard index for non-carcinogenic effects ~~were 2 and~~was 0.04, ~~respectively,~~ at SWMUs 38 and 39. Because the total ~~ratio~~ screening risk (using maximum concentrations) for carcinogenic effects is higher than the NMED target ~~ratio~~ risk of 1×10^{-5}, the total ~~ratios~~ screening risk using UCLs ~~were~~ was determined.

As summarized in Table E.7.HHRA-5, the total ~~ratios~~ screening risk ~~of~~ using UCLs ~~to screening levels~~ for carcinogenic effects was 1×10^{-5} and the total screening hazard index for non-carcinogenic effects ~~were 1 and~~was 0.03, ~~respectively,~~ at SWMUs 38 and 39. The total ~~ratios~~ screening risk is~~are~~ equal to ~~or less than~~ the NMED target ~~ratio~~ risk of 1×10^{-5}. The total screening hazard index is less than the NMED target hazard index of 1. Therefore, no COPCs were identified for saturated vadose zone soil water at SWMUs 38 and 39. This indicates that the constituent concentrations in the saturated vadose zone soil water at SWMUs 38 and 39 are unlikely to result in adverse health impacts to future site workers and hypothetical future residents. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMUs 38 and 39 is not evaluated further in this HHRA.

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7.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil, combined surface and subsurface soil, total soil or saturated vadose zone soil water at SWMUs 38 and 39.

7.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

Two SVOCs (benzidine and n-methyl-n-nitrosomethanamine) and one metal (arsenic) were not detected in the surface soil, but had some SQLs greater than the screening values. One SVOC (benzidine) and one metal (chromium) were not detected in the combined surface and subsurface soil, but had some SQLs greater than the screening values. Because these constituents were not detected in any sample collected from SWMUs 38 and 39, it is not possible to conduct a quantitative evaluation. However, it is unlikely that their presence would have a significant effect on the overall outcome of the risk assessment.

TPH was detected in the combined surface and subsurface soil at SWMUs 38 and 39. A TPH soil screening level for construction worker exposure was not available nor were toxicity values for TPH; therefore a quantitative risk evaluation of TPH could not be conducted. However, the major components of TPH for which toxicity information exists (e.g., BTEX, PAHs) were evaluated in this HHRA, therefore TPH was not evaluated further in the HHRA.

7.3.4 Human Health Risk Summary

7.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~.~~ ~~Similarly, the screening hazard indices were also summed.~~ The total screening risks for carcinogenic effects were below the NMED target risk of 1 x 10^{-5}. The total screening hazard indices were below the NMED target hazard index of 1. ~~ratios summed. The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMUs 38 and 39. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 38 and 39 are unlikely to

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result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

7.3.4.2 Vapor Intrusion Scenarios

The results of this data screening process indicate that after comparison to health-based screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water and total soil at SWMUs 38 and 39. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMUs 38 and 39 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

7.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMUs 38 and 39. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 38 and 39 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Additionally, no COPCs were selected for saturated vadose zone soil water and total soil at SWMUs 38 and 39, indicating that vapor intrusion is unlikely to result in adverse health impacts. Based on these results, additional human health risk assessment is not warranted for SWMUs 38 and 39.

7.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMUs 38 and 39. The ERA was conducted

in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMUs 38 and 39, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMUs 38 and 39; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMUs 38 and 39 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMUs 38 and 39; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMUs 38 and 39. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

7.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMUs 38 and 39 are located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. The SWMUs are located in the northeast portion of the HELSTF and encompass an area approximately 5.1 acres. The SWMUs consist~~s~~ of former construction landfills. ~~SWMUs 38 and 39 are former construction landfills.~~ They are bounded by open areas with SWMU 144 and the main HELSTF facility to the southwest and SWMU 150 to the northeast. The SWMUs and open areas did not appear maintained during the March 2009 reconnaissance and consist of desert shrub habitat as discussed below.

This section describes the habitat at SWMUs 38 and 39. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

<u>Terrestrial Habitat</u>

Dense desert shrub habitat occurs within SWMUs 38 and 39. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMUs 38 and 39 are provided in Attachment B.

Terrestrial habitat within SWMUs 38 and 39 consists of typical desert basin shrub vegetation found throughout the area (Attachment A). At the time of the ecological reconnaissance in March 2009, the average height of shrubs ranged from 1 to 2 feet. Dominant shrubs identified within SWMUs 38 and 39 consisted primarily of 4-winged

saltbush (*Atriplex canescens*) and mormon tea (*Ephedra torreyana*). Another species identified within the SWMUs include sand dropseed grass *(Sporobolus nealii)*.

The vegetation at SWMUs 38 and 39 appears to support a diversity of wildlife. In addition to many types of insects (winged and ground-level), song birds and jackrabbits (*Lepus californicus*) were observed within the area during the ecological reconnaissance.

7.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMUs 38 and 39 are summarized below.

7.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.7.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment.

As summarized in Table E.7.ERA-1, one constituent, lead, was identified as a COPEC in surface soil.

7.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.7.ERA-2 presents the selection of combined surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.7.ERA-2, the four following constituents were identified as COPECs in combined surface and subsurface soil: bis(2-ethylhexyl)phthalate, lead, selenium, and silver.

7.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPECs identified in the SLERA were re-evaluated for the surface soil and combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Table E.7.ERA-3). Since lead, selenium and silver are bioaccumulative, they were carried forward into the food chain models. The results of the refined HQ calculations for SWMUs 38 and 39 are summarized in the subsections below.

7.4.3.1 Surface Soil

One COPEC (lead) in surface soil was carried forward into the BERA. Due to the low number of detections, a UCL was not calculated for lead. Therefore, the refined EPC equals the maximum detection (20 mg/kg) and the refined HQ for lead is greater than 1. The BERA results for the surface soil COPEC at SWMUs 38 and 39 are presented in Table E.7.ERA-4 and are discussed below:

Lead – One of six surface soil samples reported a detected concentration (20 mg/kg) above the ESL (11 m/kg). This maximum concentration was reported for sample location SSD3 and was detected above the background upper tolerance limit (UTL) as determined in the site-wide background characterization report (Appendix F of the Revised Phase III RFI Report). Due to the low number of detections of lead, the areal extent of samples containing lead above its ESL is very limited. The calculated HQ of 2 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 46 mg/kg to 510 mg/kg. Mammalian EcoSSLs for lead range from 56 mg/kg (based on insectivore diet of earthworms) to 1200 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 46 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 46 mg/kg and the maximum detected concentration, the HQ for lead would be 0.4 indicating that adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model (in Section 7.4.4), the calculated HQ values were all less than 1~~ with the exception of the cactus wren which had an HQ only slightly above 1 (i.e., 2)~~. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to lead at SWMUs 38 and 39.

Lead was identified as bioaccumulative and evaluated in the terrestrial food chain model presented in Section 7.4.4.

7.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

Four COPECs (bis[2-ethylhexyl]phthalate, lead, selenium and silver) in combined surface and subsurface soil were carried forward into the BERA. When the refined EPC for lead (6.899 mg/kg) was compared with the ESL (11 mg/kg), lead had a refined HQ less than 1 and therefore adverse impacts are not expected for terrestrial wildlife potentially exposed to lead in surface and subsurface soil at SWMUs 38 and 39. When the refined EPCs for bis(2-ethylhexyl)phthalate, selenium and silver (0.438 mg/kg, 6.291 mg/kg and 38.6 mg/kg, respectively) were compared with their ESLs (0.1 mg/kg, 0.52 mg/kg and 4.2 mg/kg, respectively), all three COPECs had a refined HQ greater than 1. The BERA results for the surface and subsurface soil COPEC at SWMUs 38 and 39 are presented in Table E.7.ERA-5 and are discussed below:

Bis(2-ethylhexyl)phthalate – Only one of 21 samples reported a detected concentration (0.438 mg/kg) above the ESL of 0.1 mg/kg. Based on the data collected from the site, the areal extent of bis(2-ethylhexyl) phthalate above its ESL is extremely limited and the exceedence was reported at a depth of 4 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact soil at 4 ft bgs, potential exposure to this subsurface soil is considered incomplete for wildlife. Considering that the refined HQ is based on the maximum detection (because a UCL was not calculable) and the extremely limited spatial extent of soil containing this COPEC, adverse impacts are not expected for terrestrial wildlife potentially exposed to bis(2-ethylhexyl)phthalate in subsurface soil at SWMUs 38 and 39.

Selenium – Selenium is a naturally occurring metal detected in 6 of 20 samples. An HQ of 10 was calculated using the UCL (6.291 mg/kg) and the USEPA Eco SSL (0.52 mg/kg). However the 6 detections were reported for samples collected from 4 sample locations at depths ranging from 4 to 9 ft bgs. Because the only exceedences occurred at depths greater than 4 ft bgs, with the exception of burrowing animals that may potentially contact deep subsurface soil, this exposure pathway is considered incomplete for wildlife. Based on these considerations, it is unlikely adverse effects from selenium would occur at SWMUs 38 and 39. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model for the desert kit fox, the calculated HQ values were less than 1.

Based on these considerations, adverse impacts are not expected for terrestrial wildlife potentially exposed to selenium in subsurface soil at SWMUs 38 and 39.

Silver – Two of twenty samples reported detected concentrations of silver at SWMUs 38 and 39. Both detections (32.9 and 38.6 mg/kg) exceeded the ESL (4.2 mg/kg); however they were reported for samples from the same sample location (sample depths at 4 and 9 ft bgs) and therefore the areal extent of samples containing silver above its ESL is extremely limited. In addition, because the only exceedences occurred at depths at 4 and 9 ft bgs, with the exception of burrowing animals that may potentially contact deep subsurface soil, this exposure pathway is considered incomplete for wildlife. The calculated HQ of 9 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 69 mg/kg to 930 mg/kg. Mammalian EcoSSLs for silver range from 14 mg/kg (based on insectivore diet of earthworms) to 1,500 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 69 mg/kg (based on avian herbivore) may be more appropriate for the site. ~~. As discussed above, a more realistic ESL for silver at this site may be 69 mg/kg, based on effects to herbivorous birds.~~ Using a screening level of 69 mg/kg and the EPC of 38.6 mg/kg, the HQ for silver would be 0.5 indicating that adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model for the desert kit fox, the calculated HQ values were less than 1. Based on these considerations, adverse impacts are not expected for terrestrial wildlife potentially exposed to silver in subsurface soil at SWMUs 38 and 39.

Selenium and silver were identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[2] presented in Section 7.4.4.

7.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMUs 38 and 39 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors

[2] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

identified in Section 2.3. The bioaccumulative COPECs identified in soil (i.e., lead, selenium and silver) were evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

7.4.4.1 Terrestrial Food Chain Models

As summarized in Tables E.7.ERA-20 and E.7.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, cactus wren, red-tailed hawk, Merriam's kangaroo rat, desert shrew and desert kit fox exposed to surface soil were less than ~~or equal to~~ 1 for lead. These results indicate that if exposure to surface soil were to occur, then adverse effects are not expected for wildlife that may access the site.

The refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to combined surface and subsurface soil were less than 1 for SWMUs 38 and 39. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to selenium or silver in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to these bioaccumulative COPECs were to occur, then adverse effects are not expected for wildlife.

7.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Forty-two constituents, including four VOCs (i.e., chloroform; 2-chlorophenol; trichloroethylene; and vinyl chloride [0-10 ft depth interval only]), nine SVOCs (i.e., benzyl butyl phthalate; bis[2-chloroethoxy]methane; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; diphenylamine; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), nine PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 1-chloronaphthalene [0-10 ft depth interval only]; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), seven pesticides (i.e., aldrin; beta-BHC [0-10 ft depth interval]; camphechlor [0-10 ft depth interval]; dieldrin; endosulfan sulfate; endrin; and 1,1,1-trichloro-2,2-bis[p-methoxphenyl]ethane), seven PCBs (i.e., Aroclor 1221; Aroclor 1232; Aroclor 1242; Aroclor 1254; Aroclor 1260; Aroclor 1016; and Aroclor 1248), one explosive (i.e., 2,6-dinitrotoluene), and five inorganics (i.e., arsenic [0-2 ft depth interval];

cadmium; chromium [0-10 ft depth interval]; selenium [0-2 ft depth interval only]; and silver [0-2 ft depth interval only]), were not detected, but had some SQLs greater than the screening values. Because these 42 constituents were not detected in any sample collected from SWMUs 38 and 39, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1993, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 17 year period. The high SQLs associated with the SWMUs 38 and 39 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

7.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMUs 38 and 39. After the SLERA, one constituent (i.e., lead) was selected as a COPEC in surface soil and four constituents [bis (2-ethylhexyl)phthalate, lead, silver, and selenium] were selected as COPECs in combined surface and subsurface soil because their HQs were greater than 1. In the BERA, lead in surface soil, and lead and selenium in combined surface and subsurface soil were retained for further evaluation in the food chain modeling since they were identified as bioaccumulative.

Tables E.7.ERA-20 and E.7.ERA-21 summarize the COPECs in surface soil and combined surface and subsurface soil that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than or equal to 1. Based on the overall analysis of the ERA for SWMUs 38 and 39, the results indicate that if exposure were to occur, then adverse effects are not expected for wildlife that may access the site.

7.5 SWMUs 38 and 39 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens.~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMUs 38 and 39. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMUs 38 and 39 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

The results of this data screening process indicate that after comparison to health-based screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water or for total soil at SWMUs 38 and 39. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMUs 38 and 39 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

A SLERA and BERA were completed for SWMUs 38 and 39 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil, and to conduct food chain modeling for the COPECs identified as bioaccumulative. The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluations at SWMUs 38 and 39 are warranted.

There are no adverse environmental impacts associated with SWMUs 38 and 39 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

8. SWMU 141

8.1 Site Description and History

SWMU 141 is an equipment storage area located 500 feet south of the Laser System Test Center (LSTC) in the HELSTF Area. The storage area consists of a fenced, asphalt-paved yard that is approximately 1.2 acres in size. The yard was unpaved until 1990. Currently, the area is used for surface storage of various equipment and materials to support the HELSTF operations.

The Equipment Storage Area (SWMU 141) was established sometime during 1981 for use to support construction associated with the HELSTF facilities; it is still an active equipment and materials storage area. Prior to that time, it was the location of the MAR Waste Stabilization Pond (SWMU 148). A previously unknown release of Entec 3000 was discovered in the east corner of the yard during the excavation of the storage yard in preparation for paving in December 1989 (Hayslett, 1990).

8.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment datasets for soil and saturated vadose zone soil water for SWMU 141 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.8.Data-1 through E.8.Data-4.

8.2.1 Surface Soil (0 to 2 ft bgs)

Fifteen soil samples, including one duplicate sample, were collected in the 0 to 2 foot depth interval as part of the 1993 investigation. Analytical results for these soil samples are summarized in Table E.8.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. One VOC and six inorganics were detected within this data set.

8.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Fifty-eight soil samples, including three duplicate samples, were collected in the 0 to 10 foot depth interval as part of the 1992 and 1993 investigations. Analytical results for these soil samples are summarized in Table E.8.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Two VOCs, two SVOCs, and six inorganics were detected within this data set.

8.2.3 Total Soil (0 to 19 ft bgs)

~~Seventy~~ Sixty seven soil samples, including ~~four~~ one duplicate sample~~s~~, were collected in the 0 to ~~21~~ 19 foot depth interval as part of the 1992, 1993, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.8.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. Two VOCs, two SVOCs, and eleven inorganics were detected within this data set.

8.2.4 Saturated Vadose Zone Soil Water

Seventeen saturated vadose zone soil water samples were collected as part of the 2004, 2005, 2006, 2007, and 2008 investigations. Analytical results for these soil water samples are summarized in Table E.8.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Four VOCs, one explosive, and thirty inorganics were detected within this data set.

8.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 141. The risk assessment approach was discussed in Section 2.2 of this appendix.

8.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs

exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration ([represented by the maximum reported concentration as an initial step)], and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

8.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.8-HHRA-1 and Table E.8-HHRA-2 present the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 feet bgs) at SWMU 141 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratios~~ screening risks for carcinogenic effects were 2×10^{-5} and ~~0.~~5 $\times 10^{-6}$ for residential and industrial scenarios, respectively. The total ~~ratios~~ screening hazard indices for non-carcinogenic effects were 0.2 and 0.02 for residential and

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industrial scenario, respectively, at SWMU 141. These total hazard indices are less than the NMED target hazard index of 1.

Because the total ~~ratio~~ screening risk (using the maximum concentration) for carcinogenic effects was greater than the NMED target risk of 1 x 10^{-5}~~1~~ for the residential scenario, the total ~~ratios~~ screening risks using UCLs were calculated. The total ~~ratios~~ screening risks for carcinogenic effects using the UCLs were 1 x 10^{-5} and ~~0.~~3 x 10^{-6} for the residential and industrial scenarios, respectively. These total ~~ratios~~ screening risks are less than or equal to the NMED target ~~ratio~~ risk of 1 x 10^{-5}.

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As summarized in Table E.8-HHRA-2, no COPCs were identified for surface soil at SWMU 141. This indicates that the constituent concentrations in surface soil at SWMU 141 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMU 141 is not evaluated further in this HHRA.

8.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method previously described. Table E.8-HHRA-3 presents the results of the screening process.

The maximum concentrations of constituents in combined surface and subsurface soil (0 to 10 feet bgs) at SWMU 141 were compared to the construction worker SSLs. It was not ~~appropriate~~possible to calculate total screening risks for carcinogenic effects as no chemicals classified as carcinogens ~~for the purpose of construction worker scenario screening~~ were detected. The total ~~ratios~~ screening hazard index for ~~carcinogenic and~~ non-carcinogenic effects ~~were~~ was 0.~~7~~ 3~~and 0.2, respectively~~. The total ~~ratios~~ screening hazard index for non-carinogenic effects ~~are~~is less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.8-HHRA-3, no COPCs were identified for combined surface and subsurface soil at SWMU 141. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 141 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to combined surface and subsurface soil at SWMU 141 is not evaluated further in this HHRA.

8.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were considered for selection as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Acetone and dichloromethane are the only VOCs detected in total soil at SWMU 141. Acetone and dichloromethane are common laboratory contaminants. As discussed in Section 2.1 (Risk Assessment Data Sets), an analysis of the concentrations for these common laboratory contaminants was conducted. The analysis for this data set revealed that there is no evidence these constituents were associated with historical operations at SWMU 141 and the detected concentrations were less than 10 times the reported sample quantitation limit for the individual samples. Therefore, acetone and dichloromethane were eliminated from further consideration, and additional evaluation of the potential for soil to represent a concern via vapor intrusion is not necessary in this HHRA because no COPCs were identified (Table E.8-HHRA-4).

8.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.8-HHRA-5 and Table E.8-HHRA-6 present the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.8.HHRA-5, the total ~~ratios~~ screening risk ~~of maximum concentrations to screening levels~~ for carcinogenic effects ~~and non-carcinogenic effects were~~ was 9×10^{-5} ~~and 0.0009, respectively~~. It was not ~~appropriate~~possible to calculate a total screening hazard index ~~for noncarcinogenic effects~~ because no non-carcinogenic toxicity values were available for the COPCs~~chemicals classified as noncarcinogens were detected~~. Because the total ~~ratio~~ screening risk (using the maximum concentration) for carcinogenic effects is higher than the NMED target ~~ration~~ risk of 1×10^{-5}, the total ~~ratios~~ screening risk using UCLs ~~were~~ was determined.

As summarized in Table E.8.HHRA-6, the total ~~ratios~~ screening risk ~~of~~ using UCLs ~~to screening levels~~ for carcinogenic effects ~~and non-carcinogenic effects were~~ was 7×10^{-5} ~~and 0.0008, respectively~~. Because the total ~~ratio~~ screening risk for carcinogenic effects is greater than the NMED target ~~ratio~~ risk of 1×10^{-5}, the following 4 constituents were identified as COPCs for the vapor intrusion evaluation at SWMU 141: chloroform, chloromethane, 1,1-dichloroethane, and trichloroethylene.

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8.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil or combined surface and subsurface soil for direct contact.

No COPCs were selected for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

Four VOCs were identified as COPCs for saturated vadose zone soil water for evaluation of inhalation via vapor migration into a hypothetical future building.

8.3.3 Determination of Exposure Point Concentrations

Four VOCs were selected as COPCs in saturated vadose zone soil water because the total ~~ratio~~ screening risk for carcinogenic effects was greater than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. The EPCs for these COPCs are summarized in Table E.8-HHRA-7.

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8.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Volatile COPCs for saturated vadose zone soil water were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 141 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 141. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 141 are summarized in the tables and subsections below.

8.3.4.1 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 141, and could be exposed to VOCs in saturated vadose zone soil water via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.8-HHRA-8 through E.8-HHRA-9). The ELCR and HI for site worker exposure to indoor air are presented in Tables E.8-HHRA-11.

The total cumulative ELCR for a future site worker exposed to indoor air at SWMU 141 is ~~3~~ 8 $\times$ 10^{-7}~~8~~, which is less than the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a site worker is 0.~~0003~~00009, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

8.3.4.2 Hypothetical Future Residents – Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 141 and could be exposed to VOCs in total soil via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Table E.8-HHRA-12.

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to indoor air at SWMU 141 is ~~6~~ 4 $\times$ 10^{-7}, which is less than the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a hypothetical future child resident is 0.~~001~~0004, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

8.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site specific uncertainties are presented below.

Two SVOCs (benzidine and n-methyl-n-nitroso methanamine) were not detected in the surface soil, but had SQLs greater than the screening values. One SVOC (benzidine) was not detected in combined surface and subsurface soil, but had SQLs greater than the screening value. ~~Two~~ Three VOCs (bis(2-chloroethyl)ether, 2-chlorophenol, and nitrobenzene), one SVOC (n-nitrosodi-n-butylamine), and one PAH (2-methylnaphthalene) were not detected in saturated vadose zone soil water but had SQLs greater than the screening value. Because these constituents were not detected in any sample collected from SWMU 141, it is not possible to conduct a quantitative evaluation. The majority of the samples collected in the early 1990s, while analyzed

using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 20 year period. The majority of the high SQLs associated with the SWMU 141 dataset are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

8.3.6 Human Health Risk Summary

8.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~ratios screening risks~~ratios ~~for carcinogenic effects~~ summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~.~~ ~~Similarly, the calculated screening hazard indices for noncarcinogenic effects were also summed.~~ The total screening risks were equal to or below the NMED target risk of 1 x 10^{-5}. The total ~~ratios~~ screening hazard ind~~ex~~ices ~~were~~ w~~as~~ere less than ~~or equal to~~ the NMED target ~~ratio~~ hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 141. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 141 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

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- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

8.3.6.2 Vapor Intrusion Scenarios

No VOCs were detected in total soil (i.e., vadose zone). Therefore, no soil COPCs were identified for the future vapor intrusion evaluation at SWMU 141. However, there were four VOCs detected in shallow saturated vadose zone soil water that were identified as COPCs and carried forward into risk calculations. As summarized in

Table E.8.HHRA-13, the total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are ~~within~~ below the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

8.3.6.3 Overall HHRA Summary

The results of the data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMU 141. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 141 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Additionally, no VOCs were selected as COPCs in soil, indicating that vapor intrusion from soil is unlikely to represent an exposure concern. However, four VOCs in the saturated vadose zone soil water were selected as COPCs for the vapor intrusion evaluation. The findings of the vapor intrusion evaluation indicate that potential future industrial or residential development of the site would result in potential indoor air exposures that are below the regulatory benchmarks for cancer risks and noncancer hazards. Based on these results, additional human health risk assessment is not warranted for SWMU 141.

8.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 141. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 141, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 141; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 141 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 141; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios

at SWMU 141. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

8.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 141 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 141 is located centrally within HELSTF and encompasses an area approximately 1 acre. The SWMU consists of an equipment storage yard that is paved with asphalt. It is bounded by SWMUs 148 and 143 to the northeast, by a concrete driveway to the east, and by the main HELSTF facility to the south, west and north. SWMU 141 is surrounded be a chain-link fence.

This section describes the habitat at SWMU 141. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

No significant terrestrial habitat occurs on or surrounding SWMU 141 because the site is covered in asphalt. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 141 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., asphalt), SWMU 141 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

8.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with

HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 141 are summarized below.

8.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.8.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment. As summarized in Table E.8.ERA-1, one constituent, silver, was identified as a COPEC in surface soil.

8.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.8.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.8.ERA-2, two constituents, bis(2-ethylhexyl)phthalate and silver, were identified as COPECs in combined surface and subsurface soil.

8.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPECs identified in the SLERA were re-evaluated for both the surface soil and for the combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Tables E.8.ERA-3 through E.8.ERA-5). Since silver is bioaccumulative it was carried forward into the food chain models. The results of the refined HQ calculations for SWMU 141 are summarized in the subsections below.

8.4.3.1 Surface Soil

One COPEC (silver) in surface soil was carried forward into the BERA. Due to the low number of detections, a UCL was not calculated for silver. Therefore, the refined EPC equals the maximum detection (72.4 mg/kg) and the refined HQ for silver is greater than 1. The BERA results for the surface soil COPEC at SWMU 141 are presented in Table E.8.ERA-3 and are discussed below:

Silver – Four concentrations (ranging from 10.8 mg/kg to 72.4 mg/kg) were detected above the ESL (4.2 m/kg). Silver was not detected in background soil samples

collected as part of the HELSTF wide background characterization report (Appendix F of the Revised Phase III RFI Report). One of the four samples was collected from outside the SWMU 141 boundary but included in the data set for SWMU 141 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing silver (including the impacted area within adjacent SWMU 148) above its ESL is very limited (approximately 0.11 acre). The calculated HQ of 20 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 69 mg/kg to 930 mg/kg. Mammalian EcoSSLs for silver range from 14 mg/kg (based on insectivore diet of earthworms) to 1,500 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 69 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 69 mg/kg and the maximum detected concentration of 72.4 mg/kg, the HQ for silver is 1, indicating that adverse ecological effects are unlikely if exposure was to occur. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to silver at SWMU 141.

Silver was identified as bioaccumulative and evaluated in the terrestrial food chain model presented in Section 8.4.4.

8.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

Two COPECs [bis(2-ethylhexyl)phthalate and silver] in combined surface and subsurface soil were carried forward into the BERA. Due to the low number of detections, a UCL was not calculated for bis(2-ethylhexyl)phthalate. Therefore, the refined EPC equals the maximum detection (0.4 mg/kg) and the refined HQ for bis(2-ethylhexyl)phthalate is greater than 1. When the refined EPC (23.26 mg/kg) for silver was compared with the ESL (4.2 mg/kg), the refined HQ is greater than 1. The BERA results for the surface and subsurface soil COPEC at SWMU 141 are presented in Table E.8.ERA-4 and are discussed below:

Bis(2-ethylhexyl)phthalate – Only one of 46 samples reported a detected concentration (0.4 mg/kg) above the ESL of 0.1 mg/kg. Based on the data collected from the site, the areal extent of bis(2-ethylhexyl)phthalate above its ESL is extremely limited and the exceedence was reported at a depth of 3 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact soil at 3 ft bgs, potential exposure to this subsurface soil is considered incomplete for wildlife. Considering that the refined HQ is based on the maximum detection because a UCL was not calculable,

and the conservative USEPA Region 4 ESV, adverse impacts are not expected for terrestrial wildlife if exposed to bis(2-ethylhexyl)phthalate in subsurface soil at SWMU 141.

Silver – Twelve samples reported detected concentrations (8.8 mg/kg to 74.8 mg/kg) above the ESL of 4.2 mg/kg. Silver was not detected in background soil samples collected as part of the HELSTF wide background characterization report (Appendix F of the Revised Phase III RFI Report). Three of the eight sample locations were collected from outside the SWMU 141 boundary but included in the data set based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing silver (including the affected area within adjacent SWMU 148) above its ESL is very limited (approximately 0.3 acre). As discussed above, a more realistic ESL for silver at this site may be 69 mg/kg, based on effects to herbivorous birds. Using a screening level of 69 mg/kg and the EPC of 26.86 mg/kg, the HQ for silver is 0.4 indicating that adverse ecological effects are unlikely if exposure was to occur. Based on these considerations, adverse impacts are not expected for terrestrial wildlife potentially exposed to silver in surface and subsurface soil at SWMU 141.

Silver was identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[3] presented in Section 8.4.4.

8.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 141 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The COPEC identified in soil (i.e., silver) was evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

8.4.4.1 Terrestrial Food Chain Models

As discussed previously, due to its location within an active testing facility and current landcover (i.e., asphalt), SWMU 141 does not provide any significant habitat for

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[3] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

ecological receptors and there are no complete exposure pathways under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

As summarized in Tables E.8.ERA-20 and E.8.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, cactus wren, red-tailed hawk, Merriam's kangaroo rat and desert kit fox exposed to surface soil were less than 1 for silver. The refined scenario LOAEL and NOAEL HQs for the desert shrew exposed to surface soil were 2 and 17 respectively, indicating adverse impacts to individual mammals may occur if all exposure assumptions are met. However, considering that the more realistic scenario HQ (i.e., refined scenario) is only slightly above 1, and the limited spatial extent of affected soil (i.e., approximately 0.11 acre), adverse impacts are unlikely to occur for desert shrew, and for other insectivorous mammals, if exposed to silver in the future.

The refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to both surface and subsurface soil were less than or equal to 1 for SWMU 141. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to this COPEC in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to this bioaccumulative COPEC were to occur, then adverse effects are not expected for wildlife.

8.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Thirty-eight constituents, including four VOCs (i.e., chloroform; 2-chlorophenol; trichloroethylene; and vinyl chloride), ten SVOCs (i.e., benzyl butyl phthalate; bis[2-chloroethoxy]methane; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; diphenylamine; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; 2-methyl-4,6-dinitrophenol; and pentachlorophenol), nine PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 1-chloronaphthalene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), five pesticides (i.e., aldrin; dieldrin; endosulfan sulfate; endrin; and 1,1,1-trichloro-2,2-bis[p-methoxphenyl]ethane), seven PCBs (i.e., Aroclor 1221;

Aroclor 1232; Aroclor 1242; Aroclor 1254; Aroclor 1260; Aroclor 1016; and Aroclor 1248), one explosive (i.e., 2,6-dinitrotoluene), and two inorganics (i.e., cadmium and selenium), were not detected, but had some SQLs greater than the screening values. Because these 38 constituents were not detected in any sample collected from SWMU 141, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1994, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 141 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

8.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 141. After the SLERA, one constituent (i.e., silver) was selected as a COPEC in surface soil and two constituents (i.e., bis(2-ethylhexyl)phthalate and silver) were selected as COPECs in combined surface and subsurface soil because the HQs were greater than 1. In the BERA, silver was retained for further evaluation in the food chain modeling since it was identified as bioaccumulative.

Tables E.8.ERA-20 and E.8.ERA-21 summarize the constituents in surface soil and in combined surface and subsurface soil that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than or equal to 1 with the exception of the desert shrew which had a refined HQ slightly above 1. However, the affected area of silver with refined HQs greater than 1 for the desert shrew has a very limited spatial extent (approximately 0.3 acre). Based on the overall analysis of the ERA for SWMU 141, the results indicate that if exposure to soil were to occur in the future, then adverse effects are not expected for wildlife that may access the site.

It is important to reiterate here that the above assessment is for a hypothetical future scenario and only applies if the site was redeveloped and the asphalt covering removed. There are no ecologically significant current risks at SWMU 141 because of the following reasons:

The site is currently covered by asphalt which eliminates the exposure pathway for wildlife via a physical barrier; and

The affected area is very limited in spatial extent (approximately 0.3 acre). Therefore, exposure by terrestrial wildlife is not expected to cause adverse impacts to exposed receptors.

8.5 SWMU 141 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 141. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 141 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

No soil COPCs were identified for the future vapor intrusion evaluation at SWMU 141. However, the four VOCs detected in shallow saturated vadose zone soil water were identified as COPCs for the future vapor intrusion evaluation, and were carried forward into risk calculations. The total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values

for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

A SLERA and BERA were completed for SWMU 141 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil, and to conduct food chain modeling for the COPEC identified as bioaccumulative (i.e., silver). The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that there are no significant current exposures to soil and future impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMU 141 is warranted

There are no adverse environmental impacts associated with SWMU 141 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

9. SWMU 142

9.1 Site Description and History

SWMU 142 is the cleaning facility sump, located within the HELSTF Cleaning Facility (HCF). In May 2009, the HCF was taken out of service and no activities occur in the HCF building. The HCF was responsible for washing and cleaning valves, pipes and equipment for laser and support related operations. The facility consisted of a gross cleaning room (or pre-clean room), final cleaning room, packaging room and storage shelters in a fenced storage yard.

Prior to assembly, laser system hardware components ~~are~~ were cleaned through a series of washing steps using five 1,000-gallon cleaning vats and a large Freon degreaser. Hardware components ~~are~~ were also periodically re-cleaned after extensive use. Spent solvents and rinsate solutions/by-products were dumped from the cleaning vats to an open floor trench that drained to the sump in the Pre-Clean Room.

The primary contaminants removed by the cleaning operations included dust, breakdown products from laser operations, light grease or oil (USAEHA, 1990). The potential waste types generated include solvents, acids and detergents.

The construction of the HCF was completed in 1982. Plumbing, wiring and other internal construction activities were completed in March 1983. Full-scale operations at the HCF commenced in June 1983 and the HCF became fully operational during the fall of 1985. The HCF was taken out of service in May 2009.

9.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone soil water for SWMU 142 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum

and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.9.Data-1 through E.9.Data-4.

9.2.1 Surface Soil (0 to 2 ft bgs)

Eight soil samples were collected in the 0 to 2 foot depth interval as part of the 1990, 1992, and 1993 investigations. Analytical results for these soil samples are summarized in Table E.9.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Two VOCs and six inorganics were detected within this data set.

9.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Thirty-one soil samples were collected in the 0 to 10 foot depth interval as part of the 1990, 1992, and 1993 investigations. Analytical results for these soil samples are summarized in Table E.9.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Three VOCs, one SVOC, TPH, and six inorganics were detected within this data set.

9.2.3 Total Soil (0 to 43 ft bgs)

One hundred fifty-two soil samples, including seven duplicate samples, were collected in the 0 to 43 foot depth interval as part of the 1990, 1992, 1993, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.9.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, herbicides, pesticides, TPH, PCBs, explosives and inorganics. Twenty-two VOCs, five SVOCs, nine PAHs, TPH, and seventeen inorganics were detected within this data set.

9.2.4 Saturated Vadose Zone Soil Water

Ten saturated vadose zone soil water samples were collected as part of the 2004, 2005, 2006, and 2007 investigations. Analytical results for these soil water samples are summarized in Table E.9.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Nine VOCs, eight PAHs, TPH, two explosives, and twenty-five inorganics were detected within this data set.

9.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 142. The risk assessment approach was discussed in Section 2.2 of this appendix.

9.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~[~~represented by the maximum reported concentration as an initial step)~~]~~, and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

9.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 (Table E.9.HHRA-1) and applying the screening method as described above.

As summarized in Table E.9.HHRA-1, the total ~~ratios~~ screening risks calculated from~~of~~ maximum concentrations ~~to SSLs~~ for carcinogenic effects were ~~13.6~~1 x 10^{-4} and 3 x 10^{-5} for future residential and industrial scenarios, respectively at SWMU 142. The total ~~ratios~~ screening risks using the UCL could not be calculated because of the limited number of samples available. The total ~~ratios~~ screening hazard indices for non-carcinogenic effects were 0.3 and 0.02 for residential and industrial scenarios, respectively. Because the total ~~ratios~~ screening risks for carcinogenic effects were greater than the NMED target ~~ratio~~ risk of 1 x 10^{-5}, all detected constituents are identified as COPCs for surface soil. The four constituents selected as COPCs in surface soil for future industrial and future residential scenarios are listed below:

Two VOCs (i.e., 1,1-dichloroethane and 1,1,1-trichloroethane) and two inorganics (i.e., arsenic and selenium).

9.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the screening method previously described~~ratio method~~. Table E.9.HHRA-2 presents the results of the screening process.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMU 142 were compared to the construction worker SSLs. The total ~~ratios~~ screening risk for carcinogenic effects and total screening hazard index for non-carcinogenic effects were ~~0.4~~2 x 10^{-9} and ~~0.7~~1, respectively. The total ~~ratios~~ screening risk ~~are~~is less than the NMED target ~~ratio~~ risk of 1 x 10^{-5} and the total screening hazard is equal to the NMED target hazard index of 1.

As summarized in Table E.9.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMU 142. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 142 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to combined surface and subsurface soil at SWMU 142 is not evaluated further in this HHRA.

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9.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway.

Table E.9.HHRA-3 presents the selection of the total soil COPCs for the future industrial and future residential scenarios. As summarized in Table E.9.HHRA-3, the following 29 volatile constituents were identified as vapor intrusion COPCs for the future industrial scenario and the future residential scenario:

Twenty-two VOCs (acetone, benzene, n-butylbenzene, sec-butylbenzene, carbon disulfide, carbon tetrachloride, chlorinated fluorocarbon, cymene, dibenzofuran, 1,1-dichloroethane, 1,1-dichloroethylene, dichloromethane, ethylbenzene, isopropylbenzene, methylbenzene, n-propylbenzene, 1,1,1-trichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, m,p-xylene, o-xylene, and xylenes) and seven PAHs (acenaphthene, anthracene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and phenanthrene).

9.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.9.HHRA-4 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.9.HHRA-4, the total ~~ratios~~ screening risk for ~~cancer~~ carcinogenic effects was 7×10^{-6} and the total screening hazard index for non-carcinogenic effects ~~were~~ was ~~0.3 and~~ 1~~, respectively~~, at SWMU 142. The total ~~ratios~~ screening risk ~~are~~is less than the NMED target risk of 1×10^{-5} and the total screening hazard index is~~or~~ equal to the NMED target hazard index of 1. Therefore, potential exposure to indoor air due to volatile constituents in saturated vadose zone soil water at SWMU 142 is not evaluated further in this HHRA.

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9.3.2 Summary of Selected Constituents of Potential Concern

Two VOCs and two inorganics were identified as surface soil COPCs for the future industrial scenario and the future residential scenario via direct contact exposure.

No COPCs were identified for combined surface and subsurface soil for the future construction worker scenario via direct contact exposure.

Twenty-two VOCs and seven PAHs were identified as total soil COPCs for the vapor intrusion scenarios for hypothetical future receptors in a future building constructed ~~on-site~~on-site (i.e., future worker; future resident).

No COPCs were identified for saturated vadose zone soil.

9.3.3 Determination of Exposure Point Concentrations

As discussed in the previous section, four constituents were selected as COPCs in surface soil because the total ~~ratios~~ screening risk for carcinogenic effects exceeded the NMED target of 1×10^{-5}. Twenty-nine volatile constituents were selected as vapor intrusion COPCs in total soil because no screening levels were available. The EPCs for these COPCs are summarized in Table E.9.HHRA-5.

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9.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Potential risk and hazards from exposure to COPCs in surface soil were evaluated for future site worker and hypothetical future residents through direct contact exposure. Volatile COPCs for total soil were evaluated for inhalation via vapor migration into hypothetical future buildings (e.g., residence). Since no active buildings currently exist at SWMU 142 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the re-activation of the former HCF building or construction of a new building ~~on-site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 142. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 142 are summarized in the tables and subsections below.

9.3.4.1 Future Site Worker – Direct Contact Scenario

A future site worker could be present at SWMU 142, and could be exposed to constituents in surface soil through direct contact. The ELCR and HI for the site worker exposure to surface soil are presented in Table E.9-HHRA-9.

The total cumulative ELCR for future site worker exposure to surface soil at SWMU 142 is 3×10^{-5}, which is within the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The major contributor to this ELCR was arsenic. The total cumulative HI for a future site worker is 0.2, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

9.3.4.2 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 142, and could be exposed to volatile constituents in total soil via vapor migration to indoor air if a building was constructed, in the future, over VOC affected soil (vapor concentrations in indoor air are calculated in Tables E.9-HHRA-6 through E.9-HHRA-7). The ELCR and HI for site worker exposure to indoor air are presented in Tables E.9-HHRA-10.

The total cumulative ELCR for a future site worker exposed to indoor air at SWMU 142 is ~~1~~ 2 $\times 10^{-3}$~~4~~, which is marginally above the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The primary contributor to the ELCR is carbon tetrachloride. The total cumulative HI for a future site worker is ~~2~~1, which is ~~above~~ equal to the benchmark of 1. ~~However, when the HI for a future site worker exposure to indoor air is segregated into COPC-specific target organ site and critical effects (as shown on Table E.9-HHRA-10), none of the target organ HIs are above the benchmark of 1, indicating adverse non-cancer effects are unlikely to occur. The segregation of the total HI by target organ site and critical effects is consistent with USEPA and NMED guidance (USEPA, 1989; NMED, 2006).~~

9.3.4.3 Hypothetical Future Residents – Direct Contact Scenario

In the unlikely event the site is redeveloped in the future as a residential area, a hypothetical future adult and child resident could be present at SWMU 142, and could be exposed to constituents in surface soil through direct contact. The ELCR and non-carcinogenic HI for the hypothetical future resident exposure to surface soil are presented in Table E.9.HHRA~~.~~-11.

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposure to surface soil at SWMU 142 is 4×10^{-4}, which is above the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a hypothetical future child resident is 3, which is above the benchmark of 1. When the HI is segregated into COPC-specific target organ site and critical effects, the HI for skin effects is 2~~.4~~, which is above the benchmark of 1. The primary contributor to both the ELCR and the HI is arsenic.

9.3.4.4 Hypothetical Future Residents – Vapor Intrusion Scenario

As described previously, in the unlikely event the site is redeveloped in the future as a residential area, a hypothetical future adult and child resident could be present at SWMU 142 and could be exposed to VOCs in total soil via vapor migration into indoor air. The ELCR and non-cancer HI for hypothetical future resident exposure to indoor air are presented in Table E.9-HHRA-12.

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to indoor air at SWMU 142 is ~~3~~ 9 $\times 10^{-3}$~~4~~, which is above the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The primary contributor to the ELCR is carbon tetrachloride. The total cumulative HI for a hypothetical future child resident is ~~8~~5, which is above the benchmark of 1. When the HI is segregated into COPC-specific target organ sites and critical effects, the HI for kidney and liver is ~~4.4~~3, ~~and the HI for unidentified target organ is 3.0. These two target organ HIs are~~which is above the benchmark of 1. The primary contributors to the HIs are carbon tetrachloride and~~;~~ 1,2,4-trimethylbenzene~~; and 1,3,5-trimethylbenzene~~.

9.3.4.5 Discussion of Risk Characterization

Although unacceptable risks and/or hazards were calculated for the future site worker and hypothetical future resident scenarios, it is important to reiterate that no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 142 were calculated. The primary contributors to the unacceptable risks and hazards (i.e., arsenic, 1,2,4-trimethylbenzene, ~~1,3,5-trimethylbenzene~~ and carbon tetrachloride) were further examined to determine their significance in terms of hypothetical future exposure.

Arsenic

While arsenic was identified as a primary contributor to both the calculated risk and hazard, a closer examination of the detected and non-detected concentrations and

their spatial extent indicates that it is unlikely that arsenic would represent a significant exposure risk to hypothetical future resident receptors.

The maximum arsenic concentration (53 mg/kg) at SWMU 142 was reported for a sample (i.e, East Bore sample) collected from underneath the current cleaning building. Arsenic is considered unlikely to represent a significant future exposure concern because of the following reasons:

- There is no current exposure to surface soil because those samples were collected from underneath the cleaning building;
- The evaluated scenario (i.e., hypothetical future residential exposure via direct contact), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development); and
- In the extremely unlikely event that the site was re-developed in the future as a residential area, the more appropriate exposure point concentration to use to represent potential exposure would be an average concentration, rather than a maximum concentration, because the razing of the existing cleaning building and foundation during future re-development and new construction activities would very likely result in the disturbance and mixing of the surface soil such that an average concentration over such a small area would be a more representative EPC than the maximum detect. The average concentration for arsenic is 16.6 mg/kg, and the calculated cancer risk and non-cancer hazard based on this EPC is 1×10^{-4} and 0.8, respectively. This risk is within the acceptable target risk range of 1×10^{-6} to 1×10^{-4} and the hazard quotient is below the benchmark of 1.

Based on this evaluation, arsenic is not likely to represent a significant exposure risk via direct contact under future land use conditions.

1,2,4-Trimethylbenzene ~~and 1,3,5-Trimethylbenzene~~

While 1,2,4-trimethylbenzene ~~and 1,3,5-trimethylbenzene were~~was identified as a primary contributor~~s~~ to the calculated hazard, a closer examination of the detected and non-detected concentrations and their spatial extent indicates that it is unlikely that 1,2,4-trimethylbenzene ~~and 1,3,5-trimethylbenzene~~ would represent a significant exposure risk to hypothetical future resident receptors.

The maximum detect~~s~~ of 1,2,4-trimethylbenzene (1.62 mg/kg) ~~and 1,3,5-trimethylbenzene (0.736 mg/kg)~~ in soil at SWMU 142 ~~are~~ is from ~~the same~~ boring, HLSF-SB-019, and from a sample collected at a depth of 30 to 31 ft bgs. One sample was collected from that same boring at a shallower depth of 10 to 11 ft bgs, and ~~neither of the~~1,2,4-~~-~~trimethylbenzene ~~compounds were~~ was not detected (<0.01 mg/kg). This indicates that the shallower soils at the site are not impacted and suggests that conditions in the deep subsurface soil are unlikely to represent a significant release source for potential vapor migration towards the ground surface.

1,2,4-trimethylbenzene ~~and 1,3,5-trimethylbenzene are~~is considered unlikely to represent a significant future exposure concern because of the following reasons:

- The evaluated scenario (i.e., hypothetical future residential exposure via vapor intrusion), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development); and

- It is unlikely that the maximum concentrations detected in the deep subsurface soils (i.e., 30 ft below ground surface) would represent a significant source of vapors that could migrate into an overlying structure at some point in the future. This is supported by the fact that 1,2,4-trimethylbenzene ~~and 1,3,5-trimethylbenzene were~~was not detected in samples collected from shallower depths.

Based on this evaluation, 1,2,4-trimethylbenzene ~~and 1,3,5-trimethylbenzene are~~is not likely to represent a significant exposure risk via vapor intrusion under future land use conditions.

Carbon Tetrachloride

While carbon tetrachloride was identified as one of the primary contributors to both the calculated risk and hazard, a closer examination of the detected and non-detected concentrations and their spatial extent indicates that it is unlikely that carbon tetrachloride would represent a significant exposure risk to hypothetical future resident receptors.

Carbon tetrachloride was detected in only 1 of 117 samples, with a maximum concentration of 3.9 mg/kg. This sample was collected from underneath the current cleaning building (i.e., East Bore #3) at a depth of 20 feet bgs. Of the 50 total samples

that were collected from surface and shallow soil (i.e., from 0 to 15 bgs) at SWMU 142, carbon tetrachloride was not detected in any sample, including the three samples collected at 1ft bgs, 10 ft bgs and 15 ft bgs from East Bore #3. This indicates that the shallower soils at the site are unlikely to represent a significant release source for potential vapor migration towards the ground surface. Carbon tetrachloride is considered unlikely to represent a significant future exposure concern because of the following reasons:

- The evaluated scenario (i.e., hypothetical future residential exposure via vapor intrusion), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development); and

- Given the extremely low frequency of detection (i.e., <1 percent), lack of detection in surface and shallow samples, and that the one detection was from a sample obtained from deep subsurface samples (i.e., 20 ft bgs), it is unlikely that this detection represents a significant source of vapors that could migrate into an overlying structure at some point in the future.

Based on this evaluation, carbon tetrachloride is unlikely to represent a significant exposure risk via vapor intrusion under future land use conditions.

A summary of the calculated human health risk and hazards for each of the evaluated scenarios is provided in Table E.9.HHRA-13.

9.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site specific uncertainties are discussed below.

Two SVOCs (i.e., benzidine and n-methyl-n-nitroso methanamine~~Methanamine, n-methyl-n-nitroso~~) were not detected in the surface soil, but had SQLs greater than the screening values. One SVOC (i.e., benzidine) was not detected in combined surface and subsurface soil, but had SQLs greater than the screening value. Three VOCs (i.e., bis(2-chloroethyl)ether, 2-chlorophenol, and nitrobenzene) and one SVOC (i.e., n-nitrosodi-n-butylamine) were not detected in saturated vadose zone soil water but had SQLs greater than the screening value. Because these constituents were not detected in any sample collected from SWMU 142, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in the early 1990's, while

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analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 20 year period. The high SQLs associated with the SWMU 142 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with the old data are considered a minor uncertainty in the risk assessment.

TPH, petroleum hydrocarbons, and TPH fraction >C10-C28 were detected in the subsurface soil at SWMU 142. A TPH soil screening level for construction worker exposure was not available, nor were toxicity values available for TPH; therefore a quantitative risk evaluation of TPH could not be conducted. However, the major components of TPH for which toxicity information exists (e.g., BTEX, PAHs) were evaluated in this HHRA, therefore TPH was not evaluated further in the HHRA.

Dibenzofuran, acenaphthene, anthracene, fluorine, 1-methylnaphthalene, and phenanthrene were detected in the saturated vadose zone soil water at SWMU 142. Vapor intrusion-based screening levels for these six constituents were not available. Inhalation toxicity values are also not available for these constituents. Therefore data are unavailable to calculate quantitative inhalation risk estimates for dibenzofuran, acenaphthene, anthracene, fluorine, 1-methylnaphthalene, and phenanthrene.

9.3.6 Human Health Risk Summary

9.3.6.1 Soil Exposure Scenarios

9.3.6.1.1 Surface Soil (0 to 2 ft bgs)

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil were compared to health-based screening levels for future industrial worker exposure and residential exposure, and the calculated ~~ratios screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.. ~~Similarly, the calculated screening hazard indices for noncarcinogenic effects were also summed.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels, the total ~~ratios~~ screening risks for carcinogenic effects were greater than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. Four COPCs were selected for surface soil under the future industrial and residential scenarios.

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The total ELCR value for the direct contact exposure pathway for the future site worker scenario is within the target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI value for the direct contact exposure pathway for the future site worker scenario is below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

The total ELCR value for the direct contact exposure pathway for a hypothetical future resident is marginally greater than the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI value for the direct contact exposure pathway for a hypothetical future resident is above the benchmark of 1 for non-cancer hazard. When the HI for a hypothetical future resident exposure to surface soil is segregated by target organ site and critical effects, the HI for skin is above the benchmark of 1.

9.3.6.1.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil (0 to 10 ft bgs) were compared to health-based screening levels and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated screening hazard indices for noncarcinogenic effects were also summed.ratios summed.~~ The total ~~ratios~~ screening risk was~~ere~~ less than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. ~~.~~ The total screening hazard index was equal to the NMED target hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 142. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 142 are unlikely to result in adverse health impacts to the future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

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9.3.6.2 Vapor Intrusion Scenarios

9.3.6.2.1 Total Soil (Vadose Zone)

All detected volatile constituents in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway.

The total ELCR values for the vapor intrusion exposure pathway for the future site worker and hypothetical future resident are marginally above the target risk range of 10^{-6} to 10^{-4} for cancer effects. The total HI value~~s~~ for the vapor intrusion exposure pathway for the future site worker ~~and future residential are~~is ~~above~~ equal to the benchmark of 1. The total HI value for the future resident is above the benchmark of 1. When the HI for a future ~~site worker~~ resident exposure to indoor air is segregated by target organ site and critical effects, ~~none of~~the HI for liver effects ~~the hazards are~~ is above the benchmark of 1.

9.3.6.2.2 Saturated Vadose Zone Soil Water

All detected volatile constituents in saturated vadose zone soil water were compared to the USEPA (2002a) groundwater screening levels for vapor intrusion~~, and~~. T~~t~~he calculated ~~ratios screening risks~~ratios were ~~for carcinogenic effects~~ summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens~~. Similarly, the calculated total screening hazard indices for noncarcinogenic effects were summed~~. The total ~~ratios~~ screening risk ~~were~~ was below the NMED target ~~ratio~~ risk of 1 x 10^{-5}. The total screening hazard index was equal to the NMED target hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for protection of vapor intrusion, no COPCs were selected for saturated vadose zone soil water at SWMU 142. This demonstrates that the constituent concentrations in saturated vadose zone soil water are unlikely to result in adverse health impacts to future site workers and future residents potentially exposed via vapor intrusion to indoor air.

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9.3.6.3 Overall HHRA Summary

Based on the results of the HHRA, the following conclusions can be made:

The calculated ELCR and HI are within or below acceptable target risk ranges for future site workers exposed to surface soil via direct contact (incidental ingestion, inhalation of vapor/dust, and dermal contact).

The results of the HHRA indicate that under hypothetical future conditions at the site, the following exposure scenarios resulted in calculated ELCRs and/or HIs that exceeded the acceptable target risk benchmarks:

- Future site worker exposed, via vapor intrusion, to indoor air containing VOCs originating from total soil (i.e., vadose zone);

- Future resident exposed to surface soil via direct contact (incidental ingestion, inhalation of vapor/dust, and dermal contact); and

- Future resident exposed, via vapor intrusion, to indoor air containing VOCs originating from total soil (i.e., vadose zone).

It is important to reiterate that the scenarios for which unacceptable risks and/or hazards were calculated are all hypothetical future scenarios. There are no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 142. In addition, as discussed above in Section 9.3.4, the unacceptable risks and hazards were calculated for extremely unlikely future scenarios using highly conservative exposure assumptions. Therefore, the potential for COPCs at SWMU 142 to represent a significant concern in the future is considered low, and additional evaluation is considered unneccessary.

9.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 142. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 142, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 142; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 142 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 142; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 142. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

9.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 142 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 142 is located within the HELSTF Cleaning Facility. The SWMU consists of a

cleaning facility sump located entirely within a HELSTF building. The building is located adjacent to SWMUs 23 and 24, SWMU 26 and SWMU 147.

This section describes the habitat at SWMU 142. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

No significant terrestrial habitat occurs on or surrounding SWMU 142 because the site consists of the former sump located within the HELSTF Cleaning Facility Building and the outdoor areas around the building that has very limited areas of bare soil. Site photographs were not available of SWMU 142. Ecological characterization worksheets for SWMU 142 are provided in Attachment B.

It is important to note that due to the sump location within a building in an active testing facility, and because much of the soil outside of the building is beneath pavement, SWMU 142 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover such as pavement and building have been removed).

9.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 142 are summarized below.

9.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.9.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment.

As summarized in Table E.9.ERA-1, two constituents, arsenic and selenium, were identified as COPECs in surface soil.

9.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.9.ERA-2 presents the selection of combined surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.9.ERA-2, the three following constituents were identified as COPECs in combined surface and subsurface soil: bis(2-ethylhexyl)phthalate, arsenic, and selenium.

9.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPECs identified in the SLERA were re-evaluated for the surface soil and combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Tables E.9.ERA-3 and E.9.ERA-4). Since arsenic and selenium are bioaccumulative, they were carried forward into the food chain models. The results of the refined HQ calculations for SWMU 142 are summarized in the subsections below.

9.4.3.1 Surface Soil

Two COPECs (arsenic and selenium) in surface soil were carried forward into the BERA. Due to the low number of detections, UCLs were not calculated for either arsenic or selenium in surface soil. Therefore, the refined EPCs equal the maximum detections (53 mg/kg and 73 mg/kg for arsenic and selenium, respectively) and the refined HQs for arsenic and selenium are greater than 1. The BERA results for the surface soil COPECs at SWMU 142 are presented in Table E.9.ERA-3 and are discussed below:

Arsenic – Two of six surface soil samples reported a detected concentration (20 mg/kg and 53 mg/kg) above the ESL (18 mg/kg). These concentrations were reported for sample locations West Bore #1 and East Bore #3, which were collected from beneath the concrete floor of the cleaning facility sump building (Building 26131) (TEAM Please confirm figure number: RFI Figure 6.11-1). Therefore, under current conditions there is no exposure risk for wildlife associated with the arsenic detected in soil underneath the

building. Exposure to this surface soil would be possible only in the event that future redevelopment involves removal of the land cover (i.e., building floor). However, even if exposure were to occur to the surface soil, it is unlikely that arsenic would represent a hazard for ecological receptors because the arsenic concentrations are not significantly above the ESL concentration. In addition, when this COPEC was further evaluated in the site-specific terrestrial food chain model (in Section 9.4.4), the calculated HQ values were all less than 1. Based on these considerations, adverse impacts are not expected for wildlife if exposure to arsenic were to occur at SWMU 142.

Selenium – Four concentrations (ranging from 23 mg/kg to 73 mg/kg) were detected above the ESL (0.52 m/kg). These concentrations were reported for four soil samples collected from underneath the HELSTF cleaning facility (i.e., West Bore #1, South Bore #2, East Bore #3, and North Bore #4). An HQ of 100 was calculated using the maximum concentration of 73 mg/kg and the USEPA Eco SSL (0.52 mg/kg; based on EcoSSL for plants). Based on this direct contact exposure evaluation, adverse impacts to wildlife may occur if, in the future, all exposure assumptions are met and the current landcover is removed. SWMU 142 does not currently provide any significant habitat for ecological receptors and there are no complete exposure pathways under current conditions. Therefore, there is no current ecological risk associated with selenium.

Arsenic and selenium were identified as bioaccumulative and evaluated in the terrestrial food chain models presented in Section 9.4.4.

9.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

Three COPECs (bis[2-ethylhexyl]phthalate, arsenic, and selenium) in combined surface and subsurface soil were carried forward into the BERA. When the refined EPCs for bis(2-ethylhexyl)phthalate, arsenic, and selenium were compared with their ESLs, only bis(2-ethylhexyl)phthalate and selenium had a refined HQ greater than 1. When the refined EPC for arsenic (23.71 mg/kg) was compared with the ESL (18 mg/kg), arsenic had a refined HQ of 1 (rounded to nearest whole number) and therefore adverse impacts are not expected for terrestrial wildlife potentially exposed to arsenic in surface and subsurface soil at SWMU 142. The remaining BERA results for the surface and subsurface soil COPEC at SWMU 142 are presented in Table E.9.ERA-4 and are discussed below:

Bis(2-ethylhexyl)phthalate – Only one of seven samples reported a detected bis(2-ethylhexyl)phthalate concentration (0.46 mg/kg) above the ESL of 0.1 mg/kg. Based on the data collected from the site, the areal extent of bis(2-ethylhexyl)-phthalate above

its ESL is extremely limited and the exceedence was reported at a depth of 5 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact soil at 5 ft bgs, potential exposure to subsurface soil is considered incomplete for wildlife. Considering the extremely limited spatial extent of soil containing this COPEC, adverse impacts are not expected for terrestrial wildlife that may potentially be exposed, under future conditions, to bis(2-ethylhexyl)phthalate in subsurface soil at SWMU 142.

Selenium – Twelve samples reported detected concentrations (3 mg/kg to 95 mg/kg) above the ESL of 0.52 mg/kg. All twelve samples were collected from underneath the HELSTF cleaning facility (i.e., West Bore #1, South Bore #2, East Bore #3, and North Bore #4, at depths ranging from 0 to 10 ft bgs). An HQ of 80 was calculated using the UCL (40.04 mg/kg) and the USEPA Eco SSL (0.52 mg/kg). At these concentrations, if exposure were to occur in the future, then the potential for adverse impacts to wildlife exists if all exposure assumptions are met. SWMU 142 does not currently provide any significant habitat for ecological receptors and there are no complete exposure pathways under current conditions.

Selenium was identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[4] presented in Section 9.4.4.

9.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 142 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The bioaccumulative COPECs identified in soil (i.e., arsenic and selenium) were evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

9.4.4.1 Terrestrial Food Chain Models

As summarized in Tables E.9.ERA-20 and E.9.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, ~~the~~ cactus wren, red-tailed hawk, Merriam's

[4] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

kangaroo rat, desert shrew and desert kit fox exposed to arsenic in surface soil were all less than or equal to 1.

The refined scenario LOAEL and NOAEL HQs for the mourning dove, red-tailed hawk, and desert kit exposed to selenium in surface soil were less than or equal to 1. The refined LOAEL and NOAEL HQs for ~~the~~ Merriam's kangaroo rat were 1 and 14, respectively; the LOAEL and NOAEL HQs for the desert shrew were 2 and 18, respectively; and the LOAEL and NOAEL HQs for the cactus wren were 0.2 and 2, respectively. If only the NOAEL HQs were considered, then these results would suggest the potential for adverse impacts to mammal and avian receptors may occur if all exposure assumptions are met. However, the NOAEL, by definition, is a very conservative screening criterion. The LOAEL indicates a concentration above which adverse impacts to individual receptors may occur. While the HQs calculated using the conservative NOAELs are greater than 1, these HQs likely overestimate the exposures to Merriam's kangaroo rat (and other herbivorous mammals), to desert shrew (and other invertivorous mammals), and to cactus wren (and other invertivorous birds) and likely overestimate the toxicity of selenium to these populations. Considering the LOAEL HQs (a more realistic indicator of toxicity) for ~~the~~ Merriam's kangaroo rat and the cactus wren are less than or equal to 1 and the LOAEL HQ for the desert shrew is only slightly above 1, and that the spatial extent of affected soil is extremely small, ecological effects are unlikely if exposure to SWMU 142 surface soil were to occur in the future.

The refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to combined surface and subsurface soil were less than or equal to 1 for SWMU 142. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to arsenic or selenium in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to these bioaccumulative COPECs were to occur, then adverse effects are not expected for wildlife.

9.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Thirty constituents, including eleven VOCs (i.e., bromodichloromethane; bromomethane; chlorobenzene; chloroform; 2-chlorophenol; 1,4-dichlorobenzene; 1,2-dichloroethane; trans-1,3-dichloropropene; 1,1,2,2-tetrachloroethane; trichloroethylene; and vinyl chloride), eight SVOCs (i.e., benzyl butyl phthalate; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; methanamine, n-methyl-n-nitroso; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; napthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and two inorganics (i.e., mercury [0-10 ft depth interval only] and silver), were not detected, but had some SQLs greater than the screening values. Because these 30 constituents were not detected in any sample collected from SWMU 142, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1994, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 142 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

9.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 142. After the SLERA, two constituents (i.e., arsenic and selenium) were selected as COPECs in surface soil and three constituents [bis (2-ethylhexyl)phthalate; arsenic; and selenium] were selected as COPECs in combined surface and subsurface soil because their HQs were greater than 1. In the BERA, arsenic and selenium in surface soil and in combined surface and subsurface soil were retained for further evaluation in the food chain modeling since they were identified as bioaccumulative.

Tables E.9.ERA-20 and E.9.ERA-21 summarize the COPECs in surface soil and in combined surface and subsurface soil, respectively, that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than or equal to 1 for arsenic. The refined scenario LOAEL and NOAEL HQs for the mourning dove, red-tailed hawk, and desert kit fox exposed to surface soil were less than or equal to 1 for selenium, while the Merriam's kangaroo rat, the desert shrew, and the cactus wren had refined HQs slightly above 1. Considering the LOAEL HQs (a more realistic indicator of toxicity) for the Merriam's

kangaroo rat and the cactus wren are less than or equal to 1 and the LOAEL HQ for the desert shrew is only slightly above 1, and that the spatial extent of affected soil is extremely small, the potential is low for future adverse ecological effects.

It is important to reiterate here that the above assessment is for a hypothetical future scenario and only applies if the site was redeveloped and the HELSTF Cleaning Facility Building removed. Thus, there are no current ecological risks at SWMU 142.

9.5 SWMU 142 Summary and Conclusions

The HHRA for SWMU 142 indicates that current industrial use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and non-cancer hazards. The evaluation also indicates that potential future industrial use or residential use of the site may result in potential exposures to surface soil and indoor air that are above the regulatory benchmarks for cancer risks and non-cancer hazards. However, after further examination of the primary contributors to the unacceptable risks and hazards at SWMU 142, the potential for the site to represent a significant concern via the direct contact pathway or vapor intrusion pathway in the future is considered low, and additional evaluation is considered unneccessary.

A SLERA and BERA were completed for SWMU 142 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil. The results indicate that under current conditions adverse effects are not expected for wildlife that may access the site.

There are no current environmental impacts associated with SWMU 142 as a result of historical site activities. However, potential future industrial and residential use of the site may result in potential surface soil and indoor air exposures that are above the regulatory benchmarks for cancer and noncancer hazards if all exposure assumptions are met. It is important to reiterate that the scenarios for which unacceptable risks and/or hazards were calculated are all hypothetical future scenarios. There are no unacceptable risks and/or hazards to current human receptors (i.e., site workers) at SWMU 142 or to wildlife that may access the site.

10. SWMU 143

10.1 Site Description and History

The Chromate Spill Site (SWMU 143) is located in an unpaved area in the east corner of the HELSTF Equipment Storage Yard (SWMU 141), The Chromate Spill Site is inactive; the area is less than 0.5 acre and covered with crushed rock. The surrounding area (SWMU 141) consists of a paved, flat, fenced yard that is approximately 1.2 acres in size.

A release of approximately 55 gallons of Entec 300, a corrosion inhibitor containing hexavalent chromium and zinc, resulted from the mishandling of the raw material. The release was discovered during December 1989 while the area was being prepared for paving.

10.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and groundwater for SWMU 143 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.10.Data-1 through E.10.Data-4.

10.2.1 Surface Soil (0 to 2 ft bgs)

Nine soil samples were collected in the 0 to 2 foot depth interval as part of the 2006 investigation. Analytical results for these soil samples are summarized in Table E.10.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Six inorganics were detected within this data set.

10.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Thirty-four soil samples, including two duplicate samples, were collected in the 0 to 10 foot depth interval as part of the 1992, 1993, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.10.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, TPH, and inorganics. Seven inorganics were detected within this data set.

10.2.3 Total Soil (0 to 21 ft bgs)

Fifty-one soil samples, including two duplicate samples, were collected in the 0 to 21 foot depth interval as part of the 1992, 1993, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.10.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. One VOC, two SVOCs, twelve inorganics were detected within this data set.

10.2.4 Saturated Vadose Zone Soil Water

Eighty-three saturated vadose zone soil water samples, including twelve duplicate samples, were collected as part of the 2004, 2005, 2006, 2007, and 2008 investigations. Analytical results for these soil water samples are summarized in Table E.10.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Eight VOCs, four SVOCs, two PAHs, TPH, three explosives, and thirty-four inorganics were detected within this data set.

10.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 143. The risk assessment approach was discussed in Section 2.2 of this appendix.

10.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs

exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration [(represented by the maximum reported concentration as an initial step)], and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and noncarcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

10.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.10.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 feet bgs) at SWMU 143 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratios~~ screening risks for carcinogenic effects were 2×10^{-5} and ~~0.~~5 $\times 10^{-6}$ for residential and industrial scenarios, respectively. The total ~~ratios~~ screening

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hazard indices for non-carcinogenic effects were 0.~~06~~ 07 and 0.005 for residential and industrial scenarios, respectively, at SWMU 143.

Because the total ~~ratio~~ screening risk~~s~~ (using the maximum concentration) for carcinogenic effects was greater than 1 x 10^{-5} for the residential scenario, total ~~ratios~~ screening risk~~s~~ using UCLs are typically calculated. However, in this case, the total ~~ratios~~ screening risk~~s~~ using the UCL could not be calculated for SWMU 143 because of the limited number of samples available.

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Because the total ~~ratio~~ risk for carcinogenic effects was greater than the NMED target ~~ratio~~ risk of 1 x 10^{-5}, all detected constituents are identified as COPCs for surface soil for the residential scenario. The following three constituents were selected as COPCs for surface soil: arsenic, chromium, and silver.

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10.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method. Table E.10.HHRA-2 presents the results of the screening process.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMU 143 were compared to the construction worker SSLs. It was not ~~appropriate~~possible to calculate a total screening risk~~s~~ for carcinogenic effects as no chemicals classified as carcinogens ~~for the purpose of construction worker scenario screening were detected~~. The total ~~ratios~~ screening haxard index for ~~carcinogenic and~~ non-carcinogenic effects ~~were~~ was ~~1 and~~ 0.~~2~~3~~, respectively~~. The total ~~ratios~~ screening hazard index ~~are~~ is less than ~~or equal to~~ the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.10.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMU 143. This indicates that the constituent concentrations in combined surface and subsurface soil at SWMU 143 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to combined surface and subsurface soil at SWMU 143 is not evaluated further in this HHRA.

10.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels

for the vapor intrusion pathway. Table E.10.HHRA-3 presents the selection of the total soil COPCs for the HHRA. As summarized in Table E.10.HHRA-3, the following three constituents were identified as COPCs for the vapor intrusion evaluation: acetone, 2-methylnaphthalene, and phenanthrene.

10.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.10.HHRA-4 and Table E.10.HHRA-5 present the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.10.HHRA-4, the total ~~ratios~~ screening risk for carcinogenic effects and total screening hazard index for non-carcinogenic effects were ~~42~~ 4 x 10^{-4} and 0.3, respectively, at SWMU 143. Because the total ~~ratio~~ screening risk for carcinogenic effects was greater than the NMED target of 1 x 10^{-5}, the total ~~ratios~~ screening risk and total screening hazard index using UCLs were calculated. As summarized in Table E.10.HHRA-5, the total ~~ratios~~ screening risk for carcinogenic and total screening hazard index for non-carcinogenic effects calculated using the UCL were 8 x 10^{-5} and 0.2, respectively, at SWMU 143.

Because the total ~~ratio~~ screening risk for carcinogenic effects using the UCL was greater than the NMED target ~~ratio~~risk of 1 x 10^{-5}, all detected volatile constituents are identified as COPCs for saturated vadose zone soil water for the vapor intrusion scenario. The 9 constituents selected as COPCs for saturated vadose zone soil water are listed below:

Seven VOCs (sec-butylbenzene; chloroform; chloroethane; 1,1-dichloroethane; 1,1-dichloroethylene; isopropylbenzene; and trichloroethylene) and two PAHs (1-methylnaphthalene and 2-methylnaphthalene).

10.3.2 Summary of Selected Constituents of Potential Concern

Three inorganics were identified as COPCs for surface soil for the hypothetical future residential scenario through direct contact exposure.

No COPCs were selected for combined surface and subsurface soil for direct contact exposure.

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One VOC and two PAHs were identified as COPCs for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

Seven VOCs and two PAHs were selected as COPCs for saturated vadose zone soil water to evaluate inhalation via vapor migration into a hypothetical future building.

10.3.3 Determination of Exposure Point Concentrations

As discussed in the previous section, three constituents were selected as COPCs in surface soil because the total ~~ratio~~ screening risk for carcinogenic effects exceeded the NMED target ~~ratio~~ risk of 1 x 10^{-5}. Three volatile constituents were selected as COPCs in total soil because no screening levels were available. Nine volatile constituents were selected as COPCs in saturated vadose zone soil water because the total screening risk~~ratio~~ for carcinogenic effects exceeded the NMED target ~~ratio~~ risk of 1x10^{-5}. The EPCs for these COPCs are summarized in Table E.10.HHRA-6.

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10.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-10. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-10. Potential risk and hazards from exposure to COPCs in surface soil were evaluated for current and future site worker and hypothetical future residents through direct contact exposure. Volatile COPCs for total soil were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 143 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building on site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 143. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 143 are summarized in the tables and subsections below.

10.3.4.1 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 143, and could be exposed to VOCs in total soil and saturated vadose zone soil water via vapor migration to indoor air if a

building was constructed in the future over VOC affected ~~soil~~ media (vapor concentrations in indoor air are calculated in Tables E.10-HHRA-7 through E.10-HHRA-10). The ELCR and HI for future site worker exposure to indoor air are presented in Table E.10-HHRA-12 (for total soil) and Table E.10-HHRA-13 (for saturated vadose zone soil water).

The total cumulative ELCR for a future site worker exposed to VOCs in total soil via vapor migration to indoor air could not be determined because no carcinogens were detected in soil at SWMU 143. The total cumulative HI for a future site worker is 0.~~000002~~0000006, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

The total cumulative ELCR for a future site worker exposed to VOCs in saturated vadose zone soil water via vapor migration to indoor air is ~~2~~ 8 x 10^{-7}~~8~~, which is below the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a future site worker is 0.~~003~~001, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

10.3.4.2 Hypothetical Future Residents – Direct Contact Scenario

In the unlikely event the site is redeveloped in the future as a residential area, a hypothetical future adult and child resident could be present at SWMU 143, and could be exposed to constituents in surface soil through direct contact. The ELCR and HI for hypothetical future resident exposure to surface soil are presented in Table E.10.HHRA.14.

The total cumulative ELCR for hypothetical future age-adjusted resident (0 to 30 years) exposure to surface soil at SWMU 143 is 7×10^{-5}, which is within the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a hypothetical future child resident is ~~0.4~~0.4~~5~~, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

10.3.4.3 Hypothetical Future Residents – Vapor Intrusion Scenario

In the unlikely event the site is redeveloped in the future as a residential area, a hypothetical future adult and child resident could be present at SWMU 143 and could be exposed to VOCs in total soil and saturated vadose zone soil water via vapor migration into indoor air. The ELCR and HI for hypothetical future resident exposure to indoor air are presented in Table E.10-HHRA-15 and Table E.10-HHRA-16.

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to indoor air via vapor migration from soil at SWMU 143 could not be determined because no carcinogens were detected in the total soil. The total cumulative HI for a hypothetical future child resident is 0.~~000006~~000003, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to indoor air via vapor migration from saturated vadose zone soil water at SWMU 143 was ~~5~~ 4 $\times$ 10^{-7}, which is below the acceptable target risk range of 1 $\times$ 10^{-6} to 1 $\times$ 10^{-4}. The total cumulative HI for a hypothetical future child resident is ~~0.01~~0.005, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

10.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site specific uncertainties are discussed below.

One SVOCs (i.e., benzidine) was not detected in the surface soil, and combined surface and subsurface soil but had SQLs greater than the screening values. Five VOCs (i.e., bis(2-chloroethyl)ether, 2-chlorophenol, 1,2-dichlorbenzene, m-dichlorobenzene, and nitrobenzene) and one SVOC (i.e., n-nitrosodi-n-butylamine) were not detected in saturated vadose zone soil water but had SQLs greater than the screening value. Because these constituents were not detected in any sample collected from SWMU 143, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1993, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 17 year period. The high SQLs associated with the SWMU 143 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

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1-Methylnaphthalene was detected in the saturated vadose zone soil water at SWMU 143; however a NMED or USEPA screening level for this constituent is not available. 1-Methylnaphthalene is not a highly volatile compound and the maximum detected concentration for this constituent was relatively low in saturated vadose zone

soil water. Therefore, it is unlikely that its presence would have a significant effect on the overall outcome of the risk assessment.

10.3.6 Human Health Risk Summary

10.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil (0 to 2 ft bgs) were compared to health-based screening levels and the calculated ~~ratios screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~.~~ ~~Similarly, the calculated screening hazard indices for noncarcinogenic effects were also summed.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure and residential exposure, the total screening risk for carcinogenic effects and the total screening hazard for non-carcinogenic effects ~~ratios~~ for the industrial worker scenario are below the NMED target risk of 1 x 10^{-5} and the NMED target hazard index of 1, indicating that the constituent concentrations in surface soil at SWMU 143 are unlikely to result in adverse health impact to current and future site worker via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal). The total ~~ratio~~ screening risk for carcinogenic effects was greater than the NMED target ~~ratio~~ risk of 1 x 10^{-5} for the residential scenario. Therefore, three COPCs were selected for surface soil at SWMU 143.

As summarized in Table E.10.HHRA-17, the total ELCR value for the direct contact exposure pathway for the hypothetical future resident scenario is within the target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI value for the direct contact exposure pathway for the hypothetical future resident scenario is below the benchmark of 1 for non-cancer hazard indicating adverse non-carcinogenic effects are unlikely to occur.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil (0 to 10 ft bgs) were compared to health-based screening levels and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~.~~ ~~Similarly, the calculated screening hazard indices for noncarcinogenic effects were also summedratios summed.~~ The total screening risk was below the NMED target risk of 1 x 10^{-5}. The total screening hazard index was below the NMED target hazard of 1.~~The total ratios were less than or equal to the NMED target ratio of 1.~~ The results of

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this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 143. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 143 are unlikely to result in adverse health impacts to a future construction worker via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

10.3.6.2 Vapor Intrusion Scenarios

All detected volatile constituents in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil screening levels ~~screening levels~~ that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway for the future site worker and future residential scenarios could not be determined because no carcinogens were detected in total soil at SWMU 143. The total HI values for the future vapor intrusion exposure pathway for the site worker and residential scenarios are below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

Volatile constituents detected in saturated vadose zone soil water were compared to the USEPA (2002a) groundwater screening levels vapor intrusion, and the calculated ratios summed and multiplied by $1x10^{-5}$ for carcinogens or by 1 for non-carcinogens. The total screening risk for carcinogenic effects was ~~The total ratio for carcinogenic effects was~~ above the NMED target risk of 1×10^{-5} ~~target ratio of 1~~. Therefore, all detected volatile constituents were selected as COPCs in saturated vadose zone soil water at SWMU 143. As summarized in Table E.10.HHRA-17, ~~The~~ the total ELCR values for the vapor intrusion exposure pathway for the future site worker and hypothetical future resident scenarios are below ~~or within~~ the target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the vapor intrusion exposure pathway for the future site worker and hypothetical future resident scenarios are below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

10.3.6.3 Overall HHRA Summary

The HHRA for SWMU 143 indicates that current and future industrial use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and noncancer hazards. The evaluation also indicates that potential future residential redevelopment of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and noncancer hazards.

Based on these results, additional human health risk assessment is not warranted for SWMU 143.

10.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 143. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 143, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 143; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 143 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 143; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 143. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

10.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 143 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 143 is located centrally within HELSTF and encompasses an area approximately 0.07 acre. The SWMU consists of an area of a former chromate spill. The SWMU is covered with a crushed red rock ground cover and is surrounded by a 10 foot fence. It is bounded by SWMU 148 to the south, SWMU 141 to the west, and the main HELSTF facility to the north and east.

This section describes the habitat at SWMU 143. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

No significant terrestrial habitat occurs on or surrounding SWMU 143 because it is covered with crushed red rock and surrounded by pavement. Site photographs are

presented in Attachment A. Ecological characterization worksheets for SWMU 143 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., crushed red rock), SWMU 143 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

10.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 143 are summarized below.

10.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.10.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment. As summarized in Table E.10.ERA-1, one constituent, silver, was identified as a COPEC in surface soil.

10.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.10.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment. As summarized in Table E.10.ERA-2, one constituent, silver, was identified as a COPEC in combined surface and subsurface soil.

10.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPEC identified in the BERA (silver) was re-evaluated for both the surface soil and for the combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Tables E.10.ERA-3 through E.10.ERA-5). Since silver is bioaccumulative it was carried forward into the food chain models. The results of the refined HQ calculations for SWMU 143 are summarized in the subsections below.

10.4.3.1 Surface Soil

One COPEC (silver) in surface soil was carried forward into the BERA. Due to the low number of detections, a UCL was not calculated for silver. Therefore, the refined EPC equals the maximum detection (10.8 mg/kg) and the refined HQ for silver is greater than 1. The BERA results for the surface soil COPEC at SWMU 143 are presented in Table E.10.ERA-3 and are discussed below:

Silver – Only one concentration (10.8 mg/kg) was detected above the ESL (4.2 m/kg). This sample was collected from outside the SWMU 143 boundary but included in the data set for SWMU 143 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing silver (including the affected area within adjacent SWMUs 141 and 148) above its ESL is very limited (approximately 0.11 acre). The calculated HQ of 3 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 69 mg/kg to 930 mg/kg. Mammalian EcoSSLs for silver range from 14 mg/kg (based on insectivore diet of earthworms) to 1,500 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 69 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 69 mg/kg and the maximum detected concentration of 10.8 mg/kg, the HQ for silver is less than 1 indicating that adverse ecological effects would be unlikely if exposure were to occur.

Silver was identified as bioaccumulative and evaluated in the terrestrial food chain model presented in Section 10.4.4.

10.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

One COPEC (silver) in combined surface and subsurface soil was carried forward into the BERA. When the refined EPC (25.75 mg/kg) was compared with the ESL (4.2 mg/kg), silver had a refined HQ greater than 1. The BERA results for the surface and subsurface soil COPEC at SWMU 143 are presented in Table E.10.ERA-4 and are discussed below:

Silver – Five samples reported detected concentrations (8.84 mg/kg to 74.8 mg/kg) above the ESL of 4.2 mg/kg. All five of the sample locations were collected from outside the SWMU 143 boundary but included in the data set based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing silver (including the affected area within adjacent SWMUs 141 and 148) above its ESL is very limited (approximately 0.3 acre). As discussed above, a more realistic ESL for silver at this site may be 69 mg/kg, based on effects to herbivorous birds. Using a screening level of 69 mg/kg and the EPC of 26.86 mg/kg, the HQ for silver is less than 1, indicating that adverse ecological effects would be unlikely if exposure were to occur.

Silver was identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[5] presented in Section 10.4.4.

10.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 143 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The COPEC identified in soil (i.e., silver) was evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

10.4.4.1 Terrestrial Food Chain Model

Due to its location within an active testing facility and current landcover (i.e., crushed red rock), SWMU 143 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways under current conditions. The potential

[5] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

As summarized in Tables E.10.ERA-20 and E.10.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, cactus wren, red-tailed hawk, Merriam's kangaroo rat and desert kit fox exposed to surface soil were less than or equal to 1 for silver. The refined scenario LOAEL and NOAEL HQs for the desert shrew exposed to surface soil were 0.5 and 5 respectively, indicating adverse impacts to individual mammals may occur if all exposure assumptions are met. If only the NOAEL HQ for the desert shrew was considered, then these results would suggest the potential for adverse impacts to desert shrew (and other insectivorous mammals) to occur if all exposure assumptions are met. However, the NOAEL, by definition, is a very conservative screening criterion. The LOAEL indicates a concentration above which adverse impacts to individual receptors may occur. While the HQ calculated using the conservative NOAEL is greater than 1, this HQ likely overestimates both the exposure to the desert shrew (and other insectivorous mammals) and likely overestimates the toxicity of silver to these populations. Considering that the LOAEL HQ (more realistic indicator of toxicity) for the desert shrew is less than 1, and that the spatial extent of affected soil is extremely small, ecological effects are unlikely for desert shrew, and for other insectivorous mammals, if exposure to SWMU 143 surface soil were to occur in the future.

The refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to both surface and subsurface soil were less than or equal to 1 for SWMU 143. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to this COPEC in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to this bioaccumulative COPEC were to occur, then adverse effects are not expected for wildlife.

10.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Twenty-seven constituents, including four VOCs (i.e., chloroform; 2-chlorophenol; trichloroethylene; and vinyl chloride), eleven SVOCs (i.e., butyl benzyl phthalate;

bis[2-chloroethoxy]methane; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine [0-10 ft depth interval only]; 2,4-dimethylphenol; diphenylamine; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine [0-10 ft depth interval only]; 2-methyl-4,6-dinitrophenol; and pentachlorophenol [0-10 ft depth interval only]), nine PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 1-chloronaphthalene; 2-chloronaphthalene; fluoranthene; napthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and two inorganics (i.e., cadmium and selenium), were not detected, but had some SQLs greater than the screening values. Because these 27 constituents were not detected in any sample collected from SWMU 143, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1993, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 143 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

10.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 143. After the SLERA, one constituent (i.e., silver) was selected as a COPEC in surface soil and in combined surface and subsurface soil because the HQs were greater than 1. In the BERA, silver was retained for further evaluation in the food chain modeling since it was identified as bioaccumulative.

Tables E.10.ERA-20 and E.10.ERA-21 summarize the constituents in surface soil and in combined surface and subsurface soil that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than or equal to 1 with the exception of the desert shrew which had a refined NOAEL HQ slightly above 1 and LOAEL HQ less than 1. However, the affected area of silver with refined HQs greater than 1 for the desert shrew has a very limited spatial extent (approximately 0.3 acre). Based on the overall analysis of the ERA for SWMU 143, the results indicate that if exposure were to occur, then adverse effects are not expected for wildlife that may access the site.

It is important to reiterate here that the above assessment is for a hypothetical future scenario and only applies if the site was redeveloped and the red crushed rock

covering removed. There are no ecologically significant current risks at SWMU 143 because the site is currently covered by crushed red rock which acts to prevent exposure to the underlying soil.

10.5 SWMU 143 Summary and Conclusions

The HHRA for SWMU 143 indicates that current and future industrial use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and non-cancer hazards. The evaluation also indicates that potential future residential redevelopment of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and non-cancer hazards.

A SLERA and BERA were completed for SWMU 143 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil, and to conduct food chain modeling for the COPEC identified as bioaccumulative (i.e., silver). The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that there are no significant current exposures to soil and future impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMU 143 is warranted.

There are no adverse environmental impacts associated with SWMU 143 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

11. SWMU 144

11.1 Site Description and History

The LSTC Wastewater Discharge Point (also referred to as the Oryx Pit) is a rock-filled irregularly shaped pit surrounded by thick brush. The pit is approximately 10 feet in diameter by 8 feet deep.

The LSTC Wastewater Discharge Point (SWMU 144) was used from the 1960s through circa 2008 for accepting discharge from the LSTC building (formerly the MAR Building, Building 26129). As part of the original construction, a sump and discharge pump were installed in the basement of Building 26129 to collect and eject chiller coil condensate water that was periodically drained from the building's fire sprinkler system and blowdown from the cooling tower water treatment system (Hayslett 1990b).

The water from this sump was pumped to a French drain located outside the HELSTF fence several hundred yards from the building. Because of the soil characteristics in the area of the French drain, the discharged water dissolved the gypsum-containing soil sufficiently to cause subsidence of the original drain. This subsidence resulted in the fracturing of the drain pipe and a cavity formed that created a physical hazard to personnel and wildlife.

11.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone soil water for SWMU 144 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.11.Data-1 through E.11.Data-3.

11.2.1 Surface Soil (0 to 2 ft bgs)

Soil samples in the 0 to 2 foot depth interval were not required to be collected at SWMU 144 for the Phase I, II, or III RFI investigations. Therefore, surface soil at SWMU 144 was not identified as a medium of concern.

11.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Three soil samples, including one duplicate sample, were collected in the 0 to 10 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.11.Data-1. Combined surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. One VOC, TPH, and two inorganics were detected within this data set.

11.2.3 Total Soil (0 to 38 ft bgs)

Ten soil samples, including one duplicate sample, were collected in the 0 to 38 foot depth interval as part of the 1992 and 1993 investigations. Analytical results for these soil samples are summarized in Table E.11.Data-2. Total soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. One VOC, TPH, and six inorganics were detected within this data set.

11.2.4 Saturated Vadose Zone Soil Water

Two saturated vadose zone soil water samples were collected as part of the 2007 investigation. Analytical results for these soil water samples are summarized in Table E.11.Data-3. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, and inorganics. Four VOCs and five inorganics were detected within this data set.

11.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples and in saturated vadose zone soil water samples collected from SWMU 144. The risk assessment approach was discussed in Section 2.2 of this appendix.

11.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~(~~represented by the maximum reported concentration as an initial step~~)~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and noncarcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

11.3.1.1 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method described above. Table E.11.HHRA-1 presents the selection of the combined surface and subsurface soil COPCs for the HHRA.

The maximum concentrations of constituents in combined surface and subsurface soil (0 to 10 feet bgs) at SWMU 144 were compared to the construction worker SSLs. The total ~~ratio~~ screening risk for carcinogenic effects could not be determined because no constituents contributing to the total carcinogenic effect ratio were detected. The total ~~ratio~~ screening hazard index for non-carcinogenic effects was ~~0.03~~ 0.06 for the construction worker scenario. The total ~~ratio~~ screening hazard index is less than the NMED target ~~ratio~~ hazard index of 1 for non-carcinogenic effects.

As summarized in Table E.11.HHRA-1, no COPCs were identified for combined surface and subsurface soil at SWMU 144. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 144 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to surface and subsurface soil at SWMU 144 is not evaluated further in this HHRA.

11.3.1.2 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were considered for selection as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Table E.11-HHRA-2 presents the selection of the total soil COPCs for the HHRA. As summarized in Table E.11-HHRA-2, acetone was the only VOC detected in total soil at SWMU 144. Acetone is a common laboratory contaminant. According to the USEPA's Functional Guidelines for Organics, these constituents can be eliminated from consideration when their concentration is less than 10 times the concentration found in associated laboratory blanks. Concentrations of acetone in total soil at SWMU 144 are greater than 10 times the concentration of reported detection limits. Therefore, acetone was selected as a COPC for total soil at SWMU 144.

11.3.1.3 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.11.HHRA-3 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.11-HHRA-3, the total ~~ratios~~ screening risk ~~of maximum concentrations to screening levels~~ for carcinogenic effects and the total screening hazard index for non-carcinogenic effects were ~~0.~~9 x 10^{-6} and 0.02, respectively at SWMU 144.

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As summarized in Table E.11.HHRA-3, no COPCs were identified for saturated vadose zone soil water at SWMU 144. This indicates that the constituent concentrations in the saturated vadose zone soil water at SWMU 144 are unlikely to result in adverse health impacts to future site workers and hypothetical future residents. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMU 144 is not evaluated further in this HHRA.

11.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for combined surface and subsurface soil (0 to 10 ft bgs) at SWMU 144.

One VOC (i.e., acetone) was identified as a COPC for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

No COPCs were selected for saturated vadose zone soil water to evaluate inhalation via vapor migration into a hypothetical future building.

11.3.3 Determination of Exposure Point Concentrations

One VOC (i.e., acetone) was selected as a COPC in total soil because no screening levels were available. The EPC~~s~~ for ~~these~~ this COPC~~s~~ ~~are~~ is summarized in Table E.11-HHRA-4.

11.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPC are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

The volatile COPC for total soil was evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 144 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child

residents were evaluated for SWMU 144. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 144 are summarized in the tables and subsections below.

11.3.4.1 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 144, and could be exposed to VOCs in total soil via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.11-HHRA-5 and E.11-HHRA-6). The HI for site worker exposure to indoor air is presented in Table E.11-HHRA-8.

The total cumulative ELCR for future site workers exposed to indoor air at SWMU 144 could not be determined because acetone is not classified as a carcinogen. The total cumulative HI for future site workers is ~~0.0002~~0.00007, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

11.3.4.2 Hypothetical Future Residents – Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 144 and could be exposed to VOCs in total soil via vapor migration into indoor air. The HI for hypothetical future adult or child resident exposure to indoor air is presented in Table E.11-HHRA-9.

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to indoor air at SWMU 144 could not be determined because acetone is not classified as a carcinogen. The total cumulative HI for a hypothetical future child resident is ~~0.0007~~0.0003, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

11.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

One SVOC (benzidine) was not detected in the combined surface and subsurface soil, but had SQLs greater than the screening values. Because this constituent was not detected in any sample collected from SWMU 144, it is not possible to conduct a quantitative evaluation. All soil samples collected in the early 1990s, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly

lower over the past approximately ~~15~~ 20 year period. The high SQLs associated with the SWMU 144 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with the old data are considered a minor uncertainty in the risk assessment.

TPH was detected in the combined surface and subsurface soil at SWMU 144. TPH screening levels for a construction worker and toxicity information for TPH are not available; therefore a quantitative risk evaluation could not be conducted. However, the major components of TPH for which toxicity information exists (e.g., BTEX, PAHs) were evaluated in this HHRA.

11.3.6 Human Health Risk Summary

11.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~ratios screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~. Similarly, the calculated screening hazard indices for noncarcinogenic effects were also summed.~~ The total screening risk~~s~~ w~~ere~~as below the NMED target risk of 1 x 10^{-5}. The total screening hazard index was below the NMED target hazard index of 1.~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 144. This demonstrates that the constituent concentrations in combined surface and subsurface soil (0 to 10 ft bgs) at SWMU 144 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

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No surface soil (0 to 2 ft bgs) data were required to be collected at SWMU 144 for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 144 was not identified as a medium of concern.

11.3.6.2 Vapor Intrusion Scenarios

The one detected VOC in total soil (acetone) was selected as a COPC for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway. The

total ELCR values for the future vapor intrusion exposure pathway could not be determined because acetone is not classified as a carcinogen. The total HI values for the vapor intrusion exposure pathway for the future site worker scenario and for the hypothetical future residential scenario are below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

Constituent concentrations in saturated vadose zone soil water were compared to the vapor intrusion screening levels for groundwater (USEPA, 2002a) and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated screening hazards for non-carcinogenic effects were also summed.~~ The total screening risk~~s~~ w~~ere~~as below the NMED target risk of 1 x 10^{-5}. The total screening hazard~~s~~ w~~ere~~as less than the NMED target hazard of 1.~~.~~ ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based groundwater screening levels for protection of vapor intrusion, no COPCs were selected for saturated vadose zone soil water at SWMU 144.

11.3.6.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 144. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 144 are unlikely to result in adverse health impacts to the identified potential future receptors. No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 144 was not identified as a medium of concern.

Additionally, no COPCs were selected for saturated vadose zone soil water, indicating that vapor intrusion from saturated vadose zone soil water is unlikely to result in adverse health impacts. However, one VOC in total soil was selected as a COPC for the vapor intrusion evaluation. As summarized in table E.11.HHRA-10, the findings of the vapor intrusion evaluation indicate that potential future industrial or residential development of the site would result in potential indoor air exposures that are below the regulatory benchmarks for cancer risks and noncancer hazards. Based on these results, additional human health risk assessment is not warranted for SWMU 144.

11.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and in combined surface and subsurface soil at SWMU 144. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000a; 1997c), This ERA is intended to provide input for risk management decision-making for SWMU 144, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 144; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 144 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 144; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 144. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

11.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 144 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 144 encompasses an area approximately 0.06 acre and consists of a rock-filled irregularly shaped pit surrounded by thick brush. This section describes the habitat at SWMU 144. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMU 144 is a small depressional area that was created from the LSTC wastewater discharge. The SWMU is located within a fenced area of the HELSTF. Open desert shrub habitat surrounds SWMU 144 with SWMUs 38 and 39 to the northeast and the main facility to the southwest. A dirt road providing access to the SWMU is located east of the area.

<u>Terrestrial Habitat</u>

Dense desert shrub habitat surrounds SWMU 144. A salt cedar is the dominant plant within the SWMU. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 144 are provided in Attachment B.

As stated above, the terrestrial habitat within SWMU 144 consists of a salt cedar (Attachment A). At the time of the ecological reconnaissance in March 2009, the tree's diameter at breast height (DBH) is approximately 6 inches.

The vegetation at SWMU 144 does not appear to support a diversity of wildlife due to the small size of the depressional area. Jackrabbits (*Lepus californicus*) were observed within SWMU 144 during the ecological reconnaissance.

11.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 144 are summarized below.

11.4.2.1 Surface Soil

As discussed previously, no surface soil (0 to 2 ft bgs) data were required to be collected at SWMU 144 for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 144 was not identified as a medium of concern.

11.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil (0 to 10 ft bgs) COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.11.ERA-1 presents the selection of combined surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.11.ERA-1, one constituent, acetone, was identified as a COPEC in combined surface and subsurface soil.

11.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPEC identified in the BERA (acetone) was re-evaluated for the combined surface and subsurface soil data set by calculating refined HQs. The refined HQs were calculated for the COPEC using refined EPCs (shown in Table E.11.ERA-2). Since acetone is not bioaccumulative, it was not carried forward into the food chain models. The results of the refined HQ calculations for SWMU 144 are summarized in the subsections below.

11.4.3.1 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

One COPEC (acetone) in combined surface and subsurface soil was carried forward into the BERA. When the refined EPC (18 mg/kg) was compared with the ESL (2.5 mg/kg), acetone had a refined HQ greater than 1. Because a UCL for acetone was not calculable due to the small data set (three samples), the refined EPC equals the maximum detected concentration. The BERA results for the combined surface and subsurface soil COPEC at SWMU 144 are presented in Table E.11.ERA-2 and are discussed below:

Acetone – One sample reported a detected concentration (18 mg/kg) above the ESL of 2.5 mg/kg. Based on the data collected from the site, the areal extent of acetone above its ESL is extremely limited and the exceedence was reported at a depth of 10 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact deep subsurface soil, this exposure pathway is considered incomplete for wildlife. Considering that the refined HQ is based on a conservative USEPA Region 5 ESL, and that the area of the entire site is approximately 0.06 acre, adverse impacts are not expected for terrestrial wildlife potentially exposed to acetone in subsurface soil at SWMU 144.

Because acetone was not identified as bioaccumulative, it was not evaluated in the terrestrial food chain model.

11.4.4 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Twenty-three constituents, including three VOCs (i.e., chloroform; 2-chlorophenol; and trichloroethylene), eight SVOCs (i.e., butyl benzyl phthalate; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and three inorganics (i.e., cadmium; lead; and silver), were not detected, but had some SQLs greater than the screening values. Because these 23 constituents were not detected in any sample collected from SWMU 144, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1993, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 144 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

11.4.5 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 144. After the SLERA, one constituent (i.e., acetone) was selected as a COPEC in combined surface and subsurface soil because the HQ was greater than 1. However, the only sample reporting a detection of acetone was collected from a depth of 10 ft bgs, which limits potential exposure to only deep burrowing receptors. Based on this information, and considering the size of the entire site is extremely small (approximately 0.06 acre), adverse impacts are not expected for terrestrial wildlife potentially exposed to acetone in subsurface soil at SWMU 144.

11.5 SWMU 144 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 144. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 144 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 144 was not identified as a medium of concern.

The results of the data screening process indicate that after comparison to health-based groundwater screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water. One COPC was selected for total soil and quantitatively evaluated in the risk assessment. The results indicate that the calculated risk associated with future vapor intrusion exposure from total soil was less than the acceptable benchmark, indicating adverse non-carcinogenic effects are unlikely to occur for the future site worker scenario and for the hypothetical future residential scenario.

A SLERA and BERA were completed for SWMU 144, to evaluate the combined surface and subsurface soil data set for ecological receptors. The results of the SLERA and BERA indicate there is adequate information to conclude that there are no significant current exposures to soil and future adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the subsurface soil. Therefore, no further ecological evaluation at SWMU 144 is warranted.

There are no adverse environmental impacts associated with SWMU 144 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

12. SWMU 145

12.1 Site Description and History

The former Test Cell 4 Lagoon (SWMU 145) is located approximately 600 feet west of the sewage lagoons (SWMUs 27 through 30) in the south central section of the HELSTF. The dimensions of the unit are 105 ft by 60 ft by 6 ft deep. The unit was constructed using a single six-mil Hypalon® liner with no secondary containment. The area is currently covered with an asphalt pad.

12.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of the soil and saturated vadose zone soil water data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone soil water for SWMU 145 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.12.Data-1 through E.12.Data-3.

12.2.1 Surface Soil (0 to 2 ft bgs)

Soil samples in the 0 to 2 foot depth interval were not required to be collected at SWMU 145 for the Phase I, II and III RFI investigations. Therefore, surface soil at SWMU 145 was not identified as a medium of concern.

12.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Two soil samples, including one duplicate sample, were collected in the 0 to 10 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.12.Data-1. Combined surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Two inorganics were detected within this data set.

12.2.3 Total Soil (0 to 43 ft bgs)

Twelve soil samples, including one duplicate sample, were collected in the 0 to 43 foot depth interval as part of the 1992 and 1993 investigations. Analytical results for these soil samples are summarized in Table E.12.Data-2. Total soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. One VOC and six inorganics were detected within this data set.

12.2.4 Saturated Vadose Zone Soil Water

Three saturated vadose zone soil water samples, including one duplicate sample, were collected as part of the 2007 investigation. Analytical results for these soil water samples are summarized in Table E.12.Data-3. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, and inorganics. Two VOCs and five inorganics were detected within this data set.

12.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 145. The risk assessment approach was discussed in Section 2.2 of this appendix.

12.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~{~~represented by the maximum reported concentration as an initial step)~~}~~, and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater

than the target risk level of 1 x 10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

12.3.1.1 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method discussed above. Table E.12.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMU 145 were compared to the construction worker SSLs. The total ~~ratio~~ screening risk for carcinogenic effects could not be determined because no constituents contributing to the total carcinogenic effect ~~ratio~~ were detected. The total ~~ratio~~ screening hazard index for non-carcinogenic effects was ~~0.006~~ 0.008 for the construction worker scenario. This total ~~ratio~~ screening hazard index is less than the NMED target ~~ratio~~ hazard index of 1.

12.3.1.2 Total Soil

All detected VOCs in the total soil (i.e., vadose zone) were selected considered for selection as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. As summarized in Table E.12.HHRA-2, acetone was the only VOC that was detected in the total soil at SWMU 145. Acetone is a common laboratory contaminant. As discussed in Section 2.1 (Risk Assessment Data Sets), an analysis of the concentrations for this common

laboratory contaminant was conducted. The analysis for this data set revealed there is no evidence that this constituent was associated with historical operations at SWMU 145 and the detected concentrations were less than 10 times the reported sample quantitation limit for the individual samples. Therefore, acetone was eliminated from further consideration, and no COPCs were identified for total soil (vadose zone). Potential exposure to vapors in indoor air from volatile compounds in soil is not evaluated further in this HHRA because no COPCs were identified (Table E.12.HHRA-2).

12.3.1.3 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.12.HHRA.4 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.12.HHRA-3, the total ~~ratio~~ screening risk for carcinogenic effects was ~~0.1~~1 x 10^{-6} at SWMU 145. The total ~~ratio~~ screening hazard index for non-carcinogenic effects could not be calculated because no constituents contributing to the total ~~ratio of~~hazard index ~~non-carcinogenic effects~~ were detected. The total ~~ratio~~ screening risk for carcinogenic effects is less than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMU 145 is not evaluated further in this HHRA.

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12.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for combined surface and subsurface soil, total soil, or saturated vadose zone soil water at SWMU 145.

12.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

Although one SVOC (benzidine) was not detected in soil, it had one or more SQLs greater than the screening value. Because benzidine were not detected in any sample collected from SWMU 145, it is not possible to conduct a quantitative evaluation. However, it is unlikely that its presence would have a significant effect on the overall outcome of the risk assessment.

12.3.4 Human Health Risk Summary

12.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~ratios screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens and by 1 for non-carcinogens. ~~Similarly, the screening hazard indices were also summed.~~ The total screening risk for carcinogenic effects could not be determined because no constituents contributing to the total screening ~~carcinogenic effect~~risk were detected. ~~The total ratios were less than the NMED target ratio of 1.~~ The total screening hazard ~~indices~~index w~~ere~~as below the NMED target hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 145. This demonstrates that the constituent concentrations in combined surface and subsurface soil (0 to 10 ft bgs) at SWMU 145 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

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No surface soil (0 to 2 ft bgs) data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to surface soil at SWMU 145 by site workers or future residents is not expected to represent an exposure concern.

12.3.4.2 Vapor Intrusion Scenarios

The results of this data screening process indicate that after comparison to health-based screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water at SWMU 145. In addition, no COPCs were selected for total soil at SWMU 145. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMU 145 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

12.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 145. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 145 are unlikely to result in adverse health impacts to the identified potential future receptors. No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to surface soil at SWMU 145 by site workers or future residents is not expected to represent an exposure concern.

Additionally, no COPCs were selected for saturated vadose zone soil water and total soil at SWMU 145, indicating that vapor intrusion is unlikely to result in adverse health impacts. Based on these results, additional human health risk assessment is not warranted for SWMU 145.

12.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 145. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000a; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 145, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 145; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 145 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 145; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 145. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

12.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 145 is the former test cell 4 lagoon located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 145 encompasses an area less than 0.5 acre. ~~SWMU~~

~~145 is a former test cell 4 lagoon.~~ The area is bounded by a chain link fence and HELSTF infrastructure to the north and west, and open areas to the east and south.

This section describes the habitat at SWMU 145. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

No significant terrestrial habitat occurs within SWMU 145. The SWMU currently consists of an asphalt pad. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 145 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., asphalt) SWMU 145 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

12.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 145 are summarized below.

12.4.2.1 Surface Soil

As discussed previously, no surface soil (0 to 2 ft bgs) data were required to be collected at SWMU 145 for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 145 was not identified as a medium of concern.

12.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.12-ERA-1 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

The results of the data screening indicate that no COPECs were identified for combined surface and subsurface soil at SWMU 145.

12.4.2.3 Summary of COPEC Selection

The available soil data (combined surface and subsurface soil) for SWMU 145 were compared with the appropriate ecological screening levels. No soil COPECs were identified for SWMU 145. Based on these results, it has been determined that there is adequate information to conclude that current and future ecological risks are unlikely and no further action is warranted at SWMU 145.

12.4.3 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Twenty-three constituents, including three VOCs (i.e., chloroform; 2-chlorophenol; and trichloroethylene), eight SVOCs (i.e., butyl benzyl phthalate; bis[2-chloroethoxy]methane; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and three inorganics (i.e., cadmium; lead; and silver), were not detected, but had some SQLs greater than the screening values. Because these 23 constituents were not detected in any sample collected from SWMU 145, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1994, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 145 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

12.4.4 Ecological Risk Summary

A screening-level risk assessment was completed for SWMU 145. There are no completed exposure pathways for ecological receptors under current conditions and no COPECs were identified for potential future exposures to soil. Based on the analysis of available information, there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMU 145 is warranted.

12.5 SWMU 145 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 145. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 145 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 145 was not identified as a medium of concern.

The results of this data screening process indicate that after comparison to health-based groundwater screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water ~~and total soil~~ at SWMU 145. In addition, no COPCs were selected for total soil at SWMU 145. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMU 145 are unlikely to result in adverse health impacts to future site workers and hypothetical future residents via inhalation of indoor air.

A SLERA was completed for SWMU 145, to evaluate the combined surface soil and subsurface soil data set for ecological receptors. The results of the SLERA indicate there is adequate information to conclude that there are no significant current exposures to soil and future adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the subsurface soil. Therefore, no further ecological evaluation at SWMU 145 is warranted.

There are no adverse environmental impacts associated with SWMU 145 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

13. SWMU 146

13.1 Site Description and History

SWMU 146 (Dry Pond) is located approximately 400 feet southwest of the HELSTF sewage lagoons (SWMU~~s~~ 27~~ through 30~~). The site consists of an unlined surface impoundment (120 ft by 120 ft, by 7 ft deep), and formerly served as an overflow for treated wastewater from the HELSTF sewage lagoons (SWMU~~s~~ 27~~ through 30~~) on an as-needed basis. It also received all non-sewage wastewater from Test Cell 2 Mechanical Building 26115.

The unit was constructed around 1981 and received effluent until sometime in 2008. Subsequent discharges have occurred from SWMU~~s~~ 27 ~~to 30~~ on an as-needed basis. In addition, the Dry Pond received effluent from Building 26115 at a rate of 30 to 50 gpm. As a result of this discharge, gypsum in the subsoil has been dissolved to approximately 7.5 ft bgs. The effluent readily flowed into a cavity formed by the discharge. Due to this condition, the pond did not contain any effluent while in operation, thus giving it the name “Dry Pond”.

13.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of the soil and saturated vadose zone soil water data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone soil water for SWMU 146 were compiled, summarized, and statistically analyzed using methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum reporting limits, and the upper confidence limit on the mean concentration and are presented in Tables E.13.Data-1 through E.13.Data-4.

13.2.1 Surface Soil (0 to 2 ft bgs)

Six soil samples, including one duplicate sample, were collected in the 0 to 2 foot depth interval as part of the 2006 investigation. Analytical results for these soil samples are

summarized in Table E.13.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, and inorganics. Nine inorganics were detected within this data set.

13.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Twelve soil samples, including two duplicate samples, were collected in the 0 to 10 foot depth interval as part of the 1992 and 2006 investigations. Analytical results for these soil samples are summarized in Table E.13.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Ten inorganics were detected within this data set.

13.2.3 Total Soil (0 to 21 ft bgs)

Twenty-five soil samples, including two duplicate samples, were collected in the 0 to 21 foot depth interval as part of the 1992, 1993, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.13.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Eleven inorganics were detected within this data set.

13.2.4 Saturated Vadose Zone Soil Water

Four saturated vadose zone soil water samples, including one duplicate sample, were collected as part of the 2006 investigations. Analytical results for these soil water samples are summarized in Table E.13.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, and inorganics. One VOC and eight inorganics were detected within this data set.

13.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 146. The risk assessment approach was discussed in Section 2.2 of this appendix.

13.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are

also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~(~~represented by the maximum reported concentration as an initial step~~)~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

13.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.13.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 feet bgs) at SWMU 146 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratios~~ screening risk for carcinogenic effects and the total hazard index for non-carcinogenic effects were ~~0.7~~7×10^{-6} and ~~0.04~~0.02, respectively for the

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residential scenario. The total screening risk for carcinogenic effects and the total hazard index for ratios for carcinogenic and non-carcinogenic effects were 0.22 x 10^{-6} and 0.0080.002, respectively for the industrial scenario. These total ratios screening risks for both the residential and industrial scenarios are less than the NMED target ratio risk of 1 x 10^{-5}. The total screening hazard indices for both the residential and industrial scenarios are less than the NMED target hazard index of 1.

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As summarized in Table E.13.HHRA-1, no COPCs were identified for surface soil at SWMU 146. This indicates that the constituent concentrations in surface soil at SWMU 146 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMU 146 is not evaluated further in this HHRA.

13.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ratio screening method previously discussed. Table E.13.HHRA-2 presents the selection of the combined surface and subsurface soil COPCs for the HHRA.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMU 146 were compared to the construction worker SSLs. The total screening risk for carcinogenic effects could not be determined because no constituents contributing to the total screening carcinogenic effectrisk were detected.The total ratios for carcinogenic and The total screening hazard index for non-carcinogenic effects were was 0.2 and 0.030.06, respectively, for the construction worker scenario. These This total ratios hazard index are is less than the NMED target ratio hazard index of 1.

As summarized in Table E.13.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMU 146. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 146 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to surface and subsurface soil at SWMU 146 is not evaluated further in this HHRA.

13.3.1.3 Total Soil

No VOCs were detected in total soil; therefore no COPCs were identified for the vapor intrusion evaluation at SWMU 146. Additional evaluation of the potential for soil to represent a concern via vapor intrusion is not necessary in this HHRA.

13.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.13.HHRA-4 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.13.HHRA-4, the total ~~ratio~~ screening risk based ~~o~~fon maximum concentrations ~~to vapor intrusion screening levels~~ for carcinogenic effects was ~~0.09~~9 x 10^{-7} at SWMU 146. The total ~~ratio~~ screening hazard index for non-carcinogenic effects could not be determined because no constituents contributing to the ~~non-carcinogenic ratio~~hazard index were detected. The total ~~ratio~~ screening risk for carcinogenic effects is less than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMU 146 is not evaluated further in this HHRA.

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As summarized in Table E.13.HHRA-4, no COPCs were identified for saturated vadose zone soil water at SWMU 146. This indicates that the constituent concentrations in the saturated vadose zone soil water are unlikely to result in adverse health impacts to future site workers and hypothetical future residents. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMU 146 is not evaluated further in this HHRA.

13.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil, combined surface and subsurface soil, total soil or saturated vadose zone soil water at SWMU 146.

13.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

One SVOC (benzidine) was not detected in the combined surface and subsurface soil, but had some SQLs greater than the screening values. Because benzidine was not

detected in any sample collected from SWMU 146, it is not possible to conduct a quantitative evaluation. However, it is unlikely that its presence would have a significant effect on the overall outcome of the risk assessment.

13.3.4 Human Health Risk Summary

13.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~ratios screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the screening hazard indices for non-carcinogenic effects were also summed.~~ The total screening risks were below the NMED target risk of 1 x 10^{-5}. The total ~~ratios~~ screening hazard indices were less than the NMED target ~~ratio~~ hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 146. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 146 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

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- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

13.3.4.2 Vapor Intrusion Scenarios

The results of this data screening process indicate that after comparison to health-based screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water at SWMU 146. In addition, no VOCs were detected in total soil. Therefore no COPCs were identified for the vapor intrusion evaluation at SWMU 146. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMU 146 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and

- Future residents (adults and children).

13.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMU 146. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 146 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Additionally, no COPCs were selected for saturated vadose zone soil water at SWMU 146 and no VOCs were detected in soil, indicating that vapor intrusion is unlikely to represent an exposure concern. Based on these results, additional human health risk assessment is not warranted for SWMU 146.

13.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 146. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 146, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 146; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 146 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 146; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 146. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

13.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 146 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 146 is located in the southeast corner of the HELSTF and encompasses an area approximately 1 acre. The SWMU consists of an unlined surface impoundment

and serves as an overflow for treated wastewater from the HELSTF sewage lagoons. This section describes the habitat at SWMU 146. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMU 146 is a dry surface impoundment. The area is surrounded by a chain link fence. SWMU 146 is bounded by the HELSTF sewage lagoons to the north, by open desert shrub habitat to the south and east, and by the HELSTF main facility to the west.

Terrestrial Habitat

Dense desert shrub habitat occurs within SWMU 146. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 146 are provided in Attachment B.

Terrestrial habitat within SWMU 146 consists of typical desert basin shrub vegetation found throughout the area (Attachment A). At the time of the ecological reconnaissance in March 2009, the average height of shrubs ranged from 2 to 5 feet. Dominant shrubs identified within SWMU 146 consisted primarily of 4-winged saltbush (*Atriplex canescens*) and mormon tea (*Ephedra torreyana*). Another species identified within the SWMU include sand dropseed grass *(Sporobolus nealii)*.

The vegetation at SWMU 146 appears to support a diversity of wildlife. In addition to many types of insects (winged and ground-level), song birds and jackrabbits (*Lepus californicus*) were observed within the area during the ecological reconnaissance.

13.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 146 are summarized below.

13.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.13.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment. As summarized in Table E.13.ERA-1, no constituents were identified as COPECs in surface soil.

13.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.13.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.13.ERA-2, one constituent, selenium, was identified as a COPEC in combined surface and subsurface soil.

13.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPEC identified in the BERA (selenium) was re-evaluated for the combined surface and subsurface soil data set by calculating a refined HQ~~s~~. The refined HQ~~s~~ ~~were~~ was calculated for the COPEC~~s~~ using a refined EPC~~s~~ (shown in Tables E.13.ERA-3 and E.13.ERA-4). Since selenium is bioaccumulative it was carried forward into the food chain models. The results of the refined HQ calculation~~s~~ for SWMU 146 are summarized in the subsections below.

13.4.3.1 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

One COPEC (selenium) in combined surface and subsurface soil was carried forward into the BERA. When the refined EPC (2.2 mg/kg) was compared with the ESL (0.52 mg/kg), selenium had a refined HQ greater than 1. A UCL for selenium was not calculable and therefore the refined EPC equals the maximum detected concentration. The BERA results for the combined surface and subsurface soil COPEC at SWMU 146 are presented in Table E.13.ERA-3 and are discussed below:

Selenium – One sample, collected at a depth of 3 ft bgs reported a detected concentration (2.2 mg/kg) above the ESL of 0.52 mg/kg. The nine other samples analyzed for selenium at SWMU 146 were non-detect. Selenium was detected in background soil samples collected as part of the HELSTF wide background

characterization report (Appendix F of the Revised Phase III RFI Report) and the results indicate that the concentrations detected at SWMU 146 exceed the background range for selenium. Based on the data collected from the site, the areal extent of selenium above its ESL is extremely limited and the exceedence was reported at a depth of 3 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact subsurface soil, potential exposure to this subsurface soil is considered incomplete for wildlife. Based on these considerations, adverse impacts are not expected for terrestrial wildlife potentially exposed to selenium in subsurface soil at SWMU 146.

Selenium was identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[6] presented in Section 13.4.4.

13.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 146 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The COPEC identified in combined surface and subsurface soil (i.e., selenium) was evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

13.4.4.1 Terrestrial Food Chain Models

As summarized in Tables E.13.ERA-5 and E.13.ERA-6, the maximum and refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to subsurface soil containing selenium were less than ~~one~~ 1 at SWMU 146. These results indicate that if kit foxes (or other similar burrowing mammals) are exposed to this COPEC in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to this bioaccumulative COPEC were to occur, then adverse effects are not expected for wildlife.

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[6] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

13.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Twenty-three constituents, including four VOCs (i.e., chloroform; 2-chlorophenol [0-10 ft depth interval only]; 1,2-dibromo-3-chloropropane; and trichloroethylene), eight SVOCs in the 0-10 ft depth interval (i.e., butyl benzyl phthalate; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene [0-2 ft depth interval also]; hexachlorobenzene; n-methyl-n-nitroso methanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs in the 0-10 ft depth interval (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene [0-10 ft depth interval only]), and two inorganics (i.e., silver [0-10 ft depth interval only] and selenium [0-2 ft interval only]), were not detected, but had SQLs greater than the screening values in some samples collected primarily from 1992. Because these 23 constituents were not detected in any sample collected from SWMU 146, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 18 year period. The high SQLs associated with the SWMU 146 dataset are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

13.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 146. After the SLERA, one constituent (i.e., selenium) was selected as a COPEC in combined surface and subsurface soil because the HQs were greater than 1. In the BERA, selenium was retained for further evaluation in the food chain modeling since it was identified as bioaccumulative.

Tables E.13.ERA-5 and E.13.ERA-6 summarize the constituents in combined surface and subsurface soil that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than 1. Based on the overall analysis of the ERA for SWMU 146, the results indicate that if subsurface soil

exposure were to occur, then adverse effects are not expected for wildlife that may access the site.

13.5 SWMU 146 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 146. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 146 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

The results of this data screening process indicate that after comparison to health-based groundwater screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water at SWMU 146. In addition, no VOCs were detected in total soil. Therefore, no COPCs were identified for the vapor intrusion evaluation at SWMU 146. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMU 146 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and

- Future residents (adults and children).

A SLERA and BERA were completed for SWMU 146, to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil, and to conduct food chain modeling for the COPEC identified as bioaccumulative (i.e., selenium). The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that potential current and future impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMU 146 is warranted.

There are no adverse environmental impacts associated with SWMU 146 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

14. SWMU 147

14.1 Site Description and History

The Decontamination Pad and Underground Storage Tank (SWMU 147) is located adjacent to the southeast exterior corner of the HELSTF Building 26131 (the Cleaning Facility). The unit was closed ~~during~~ in 1996. The Phase I and Phase II RFI reports state that the unit consisted of a 4-foot by 5-foot by 3-foot-deep underground tank with an open top covered by a grate and a steel cover.

The unit operated between 1982 and 1996. The pad was occasionally used for cleaning large pieces of equipment that could not be cleaned inside Building 26131. Wastewater/debris from the decontamination pad flowed down the drain and into a sump prior to entering the tank.

14.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of the soil and groundwater data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and groundwater for SWMU 147 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.14.Data-1 through E.14.Data-4.

14.2.1 Surface Soil (0 to 2 ft bgs)

One soil sample was collected in the 0 to 2 foot depth interval as part of the 1992 investigation. Analytical results for this soil sample are summarized in Table E.14.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. No constituents were detected within this data set.

14.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Four soil samples were collected in the 0 to 10 foot depth interval as part of the 1990 and 1992 investigations. Analytical results for these soil samples are summarized in Table E.14.Data-2. The soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. One SVOC, TPH, and one inorganic were detected within this data set.

14.2.3 Total Soil (0 to 43 ft bgs)

Thirteen soil samples, including one duplicate sample, were collected in the 0 to 43 foot depth interval as part of the 1990 and 1992 investigations. Analytical results for these soil samples are summarized in Table E.14.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. Six VOCs, one SVOC, three PAHs, TPH, and six inorganics were detected within this data set.

14.2.4 Saturated Vadose Zone Soil Water

Two saturated vadose zone soil water samples were collected as part of the 2004 investigations. Analytical results for these soil water samples are summarized in Table E.14.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Five VOCs, four PAHs, TPH, one explosive, and sixteen inorganics were detected within this data set.

14.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples and in vadose zone soil water samples collected from SWMU 147. The risk assessment approach was discussed in Section 2.2 of this appendix.

14.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detect~~ed~~ constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~[~~represented by the maximum reported concentration as an initial step)~~]~~, and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

14.3.1.1 Surface Soil

Surface soil data were evaluated by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 (Table E.14.HHRA-1) and applying the screening method as described above.

As summarized in Table E.14.HHRA-1, no constituents were detected in surface soil at SWMU 147, therefore no COPCs were selected. This indicates, along with the extremely small areal extent of the site (i.e., 4 ft by 5 ft by 3 ft deep underground sump) that surface soil conditions at SWMU 147 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMU 147 is not evaluated further in this HHRA.

14.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data in the 0 to 10 feet bgs data set with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method discussed previously. Table E.14-HHRA-2 presents the results of the screening process.

The maximum concentrations of constituents in the combined surface and subsurface soil (0 to 10 feet bgs) data set at SWMU 147 were compared to the construction worker SSLs. ~~The total ratio for carcinogenic effects was 0.009.~~ The total ~~ratio~~ screening risk for ~~non-~~carcinogenic effects could not be determined because no constituents contributing to the ~~the non-carcinogenic~~ total ~~ratio~~ screening risk were detected in combined surface and subsurface soil. The total screening hazard index for non-carcinogenic effects was 0.01. The total ~~ratio~~ screening hazard index for non-carcinogenic effects is less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.14-HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMU 147. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 147 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to combined surface and subsurface soil at SWMU 147 is not evaluated further in this HHRA.

14.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Table E.14.HHRA-3 presents the selection of the total soil COPCs for the HHRA. As summarized in Table E.14.HHRA-3, the following nine VOCs were identified as COPCs for the vapor intrusion evaluation: acetone, benzene, carbon disulfide, 1,1-dichloroethane, ethylbenzene, xylenes, fluorene, naphthalene, and phenanthrene.

14.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.14-HHRA-4 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.14.HHRA-4, the total ~~ratios of maximum concentrations to screening levels for~~screening risk for

SWMU 147

carcinogenic effects was 7 x 10^{-6} and the total screening hazard index for non-carcinogenic effects ~~were~~ was ~~0.2 and 1, respectively~~0.9, at SWMU 147. The total ~~ratios~~ screening risk ~~are~~ is less than ~~or equal to~~ the NMED target ~~ratio~~ risk of 1 x 10^{-5} and the total screening hazard index is less than the NMED target hazard of 1.

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As summarized in Table E.14-HHRA-4, no COPCs were identified for saturated vadose zone soil water at SWMU 147. This indicates that the VOC concentrations in saturated vadose zone soil water at SWMU 147 are unlikely to result in adverse health impacts to current and future site workers, or to hypothetical future residents. Therefore, potential exposure to saturated vadose zone soil water at SWMU 147 is not evaluated further in this HHRA.

14.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil (0 to 2 ft bgs) or for combined surface and subsurface soil (0 to 10 ft bgs) for direct contact.

Nine constituents (six VOCs and three PAHs) were identified as COPCs for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

No COPCs were selected for saturated vadose zone soil water for evaluation of inhalation via vapor migration into a hypothetical future building.

14.3.3 Determination of Exposure Point Concentrations

As discussed in the previous section, nine volatile constituents were selected as COPCs in total soil because no soil screening levels for the vapor intrusion pathway were available. The EPCs for these COPCs are summarized in Table E.14.HHRA-5.

14.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-14. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-14.

Volatile COPCs for total soil were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 147 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 147. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 147 are summarized in the tables and subsections below.

14.3.4.1 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 147, and could be exposed to VOCs in total soil via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.14-HHRA-6 and E.14-HHRA-7). The ELCR and HI for site worker exposure to indoor air are presented in Tables E.14.HHRA-9.

The total cumulative ELCR for a future site worker exposed to indoor air at SWMU 147 is ~~6~~ 4 $\times$ 10^{-5}~~6~~, which is within the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a site worker is ~~0.7~~0.2, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

14.3.4.2 Hypothetical Future Residents – Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 147 and could be exposed to VOCs in total soil via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Table E.14.HHRA-10.

The total cumulative ELCR for a hypothetical future age-adjusted future resident (0 to 30 years) exposed to indoor air at SWMU 147 is ~~1~~ 2 $\times$ 10^{-4}~~5~~, which is ~~at the upper end of~~~~below~~within the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a hypothetical future child resident is ~~3~~1, which is ~~above~~ equal to the benchmark of 1. ~~When the HI for a hypothetical future child resident exposure to indoor air is segregated by target site and critical effects, the HI for nasal and lung was 2, which is above the benchmark of 1. The primary contributor to the HI is naphthalene.~~

~~*14.3.4.3 Discussion of Risk Characterization*~~

~~Although an unacceptable hazard was calculated for the hypothetical future resident scenario, it is important to reiterate that no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 147 were calculated. The primary contributor to the unacceptable hazard (i.e., naphthalene) was further examined to determine its significance in terms of hypothetical future exposure.~~

~~*Naphthalene*~~

~~While naphthalene was identified as the primary contributor to the calculated risk, a closer examination of the detected and non-detected concentrations and their spatial extent indicates that it is unlikely that naphthalene would represent a significant exposure risk to hypothetical future resident receptors.~~

~~Naphthalene was detected in three of seven soil samples, with a maximum detected concentration of 14 mg/kg. All three detections occurred within the same boring (147B1), from samples collected at depths of 15 feet bgs, 20 feet bgs, and 25 feet bgs. The maximum naphthalene concentration was detected in the deepest of these samples, at 25 ft bgs. Using the maximum detection is a highly conservative approach that is not representative of the entire exposure area data set. The reported concentrations for the data set range from 1.3 mg/kg to 14 mg/kg. Additionally, it is important to note that the two shallowest samples (5 ft bgs and 10 ft bgs) collected from the boring containing the maximum detect of naphthalene (i.e., 147B1) did not contain detectable concentrations of naphthalene (<0.3 mg/kg). Naphthalene is considered unlikely to represent a significant exposure risk because of the following reasons:~~

- ~~The evaluated scenario (i.e., hypothetical future residential exposure via vapor intrusion), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development);~~

- ~~In the extremely unlikely event that the site was re-developed in the future as a residential area, the more appropriate exposure point concentration to use to represent potential exposure would be an average concentration, rather than a maximum concentration. When the average detected concentration of 7.8 mg/kg was used in the hypothetical future resident scenario, the calculated~~

~~HI is 2. When this HI was segregated by target site and critical effect, all HI values are less than or equal to 1; and~~

- ~~It is unlikely that the maximum concentrations detected in the deep subsurface soils (i.e., 25 ft below ground surface) would represent a significant source of vapors that could migrate into an overlying structure at some point in the future. This is supported by the fact that naphthalene is not detected in samples collected from shallower depths.~~

~~Based on this evaluation, naphthalene is not likely to represent a significant exposure risk via vapor intrusion under future land use conditions.~~

A summary of the calculated human health risks and hazards for each of the evaluated scenarios is provided in Table E.7-HHRA-11.

14.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

Two SVOCs (benzidine and n-methyl-n-nitrosomethanamine) were not detected in the surface soil, but had SQLs greater than the screening values. One SVOC (benzidine) was not detected in combined surface and subsurface soil, but had SQLs greater than the screening value. Three VOCs (bis(2-chloroethyl)ether, 1,2-dichlorobenzene, and m-dichlorobenzene) and one SVOC (n-nitrosodi-n-butylamine) were not detected in saturated vadose zone soil water but had SQLs greater than the screening value. Because these constituents were not detected in any sample collected from SWMU 147, it is not possible to conduct a quantitative evaluation. The majority of the soil and saturated vadose zone soil water samples collected in the early 1990s, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 20 year period. The high SQLs associated with the SWMU 147 dataset are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

TPH was detected in the combined surface and subsurface soil at SWMU 147. A TPH soil screening level for construction worker exposure was not available, nor were

toxicity values for TPH; therefore a quantitative risk evaluation of TPH could not be conducted. However, the major components of TPH for which toxicity information exists (e.g., BTEX, PAHs) were evaluated in this HHRA, therefore TPH was not evaluated further in the HHRA.

Dibenzofuran, 1-methylnaphthalene and ~~phenanthrance~~ phenanthrene were detected in the saturated vadose zone soil water at SWMU 147. Screening levels for these three constituents were not available. Dibenzofuran, 1-methylnaphthalene and ~~phenanthrance~~ phenanthrene are not highly volatile compounds and the maximum detected concentrations for these three constituents were relatively low in saturated vadose zone soil water at SWMU 147. Therefore, it is unlikely that their presence would have a significant effect on the overall outcome of the risk assessment.

14.3.6 Human Health Risk Summary

14.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~ratios screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated screening hazards for non-carcinogenic effects were also summed.~~ The total screening risks were below the NMED target risk of 1 x 10^{-5}. The total ~~ratios~~ screening hazard indices were less than the NMED target ~~ratio~~ hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 147. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 147 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

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14.3.6.2 Vapor Intrusion Scenarios

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil screening levels that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are within the target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario ~~is~~are equal to or below the benchmark of 1 for non-cancer hazard. ~~The total HI value for the future vapor intrusion exposure pathway for the hypothetical future child resident is slightly above the benchmark of 1. When the HI for a hypothetical future child resident exposure to indoor air is segregated into target organ site and critical effects, the HI for nasal and lung was 2, which is above the benchmark of 1.~~

All detected volatile constituents in saturated vadose zone soil water were compared to the USEPA (2002a) groundwater screening levels for the protection of human health via vapor intrusion, and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated screening hazard indices for non-carcinogenic effects were also summed.~~ The total screening risks were below the NMED target risk of 1 x 10^{-5}. The total screening hazard indices were less than the NMED target hazard index of 1. ~~ratios summed. The total ratios were below the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based groundwater screening levels, no COPCs were selected for saturated vadose zone soil water at SWMU 147. This demonstrates that the constituent concentrations in saturated vadose zone soil water at SWMU 147 are unlikely to result in adverse health impacts to future industrial worker and hypothetical future residents through vapor migration into indoor air.

14.3.6.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for resident and site worker exposure, no COPCs were selected for surface soil at SWMU 147. In addition, the results of the data screening process also indicated that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 147. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 147 are unlikely

to result in adverse health impacts to the identified potential current and future receptors.

Additionally, no COPCs were selected for saturated vadose zone soil water, indicating that vapor intrusion from saturated vadose zone soil water is unlikely to result in adverse health impacts. However, nine volatile compounds in total soil were selected as COPCs for the vapor intrusion evaluation. As summarized in table E.14.HHRA-11, the findings of the vapor intrusion evaluation indicate that potential future industrial or residential development of the site would result in potential indoor air exposures that are below the regulatory benchmarks for cancer risks and noncancer hazards. Based on these results, additional human health risk assessment is not warranted for SWMU 147.

~~The findings of the vapor intrusion evaluation indicated that:~~

~~• Under hypothetical future conditions, the ELCR and HI are within or below acceptable target risk ranges for site worker exposure to indoor air containing VOCs originating from total soil (i.e., vadose zone); and~~

~~• Under hypothetical future conditions, the ELCR was within the acceptable target risk range for resident exposure to indoor air containing VOCs originating from total soil (i.e., vadose zone). However, the non-cancer HI was above the acceptable benchmark of 1 primarily due to naphthalene detected in two samples.~~

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~~It is important to reiterate that the scenario for which the unacceptable hazard was calculated is a hypothetical future scenario. There are no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 147. In addition, as discussed above in Section 14.3.4, the unacceptable hazard was calculated for an extremely unlikely future scenario using highly conservative exposure assumptions. Therefore, the potential for COPCs at SWMU 147 to represent a significant concern in the future is considered low, and additional evaluation is considered unneccessary.~~

14.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 147. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input

for risk management decision-making for SWMU 147, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 147; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 147 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 147; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 147. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

14.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 147 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 147 is located centrally within HELSTF and encompasses an area approximately 0.005 acre. The SWMU consists of a concrete decontamination pad and underground storage tank. It is bounded by the cleaning facility to the north, SWMU 26 to the west, and paved HELSTF roads to the south and east.

This section describes the habitat at SWMU 147. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

<u>Terrestrial Habitat</u>

No significant terrestrial habitat occurs on or surrounding SWMU 147 because it consists of a concrete decontamination pad and underground storage tank. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 147 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., cement), SWMU 147 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

14.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 147 are summarized below.

14.4.2.1 Surface Soil

As summarized in Table E.14.ERA-1, no constituents were detected in surface soil at SWMU 147, therefore no COPECs were selected. This indicates, along with the extremely small areal extent of the site (i.e., 4 ft by 5 ft by 3 ft deep underground sump), that surface soil conditions at SWMU 147 are unlikely to result in adverse health impacts to potential future ecological receptors. Therefore, potential exposure to surface soil at SWMU 147 is not evaluated further in this ERA.

14.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil (0 to 10 ft bgs) COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.14.ERA-2 presents the selection of combined surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.14.ERA-3, one constituent, bis(2-ethylhexyl)phthalate, was identified as a COPEC in combined surface and subsurface soil.

14.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPEC identified in the SLERA [bis(2-ethylhexyl)phthalate] was re-evaluated for the combined surface and subsurface soil data set by calculating refined HQs. A refined HQ was calculated for the COPEC using a refined EPC (shown in Tables E.14.ERA-2 and E.14.ERA-3). Since bis(2-ethylhexyl)phthalate is not bioaccumulative, it was not carried forward into the food chain models. The results of the refined HQ calculations for SWMU 147 are summarized in the subsections below.

14.4.3.1 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

One COPEC [bis(2-ethylhexyl)phthalate] in combined surface and subsurface soil was carried forward into the BERA. When the refined EPC (0.46 mg/kg) was compared with the ESL (0.1 mg/kg), bis(2-ethylhexyl)phthalate had a refined HQ greater than 1. A UCL for bis(2-ethylhexyl)phthalate was not calculable and therefore the refined EPC equals the maximum detected concentration. The BERA results for the surface and subsurface soil COPEC at SWMU 147 are presented in Table E.14.ERA-2 and are discussed below:

Bis(2-ethylhexyl)phthalate – One sample reported a detected concentration (0.46 mg/kg) above the ESL of 0.1 mg/kg. Based on the data collected from the site, the areal extent of bis(2-ethylhexyl)phthalate above its ESL is extremely limited and the exceedence was reported at a depth of 5 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact subsurface soil at 5 ft bgs, this exposure pathway is considered incomplete for wildlife. In addition, the refined HQ is only slightly above 1 (i.e., 5) and is based on a conservative USEPA Region 4 ESL for total phthalates. When the USEPA Region 5 ESL of 0.925 mg/kg (USEPA, 2003d) for bis(2-ethylhexyl)phthalate was used to calculate a refined HQ, the resulting HQ is less than 1. Furthermore, when considering that the area of the entire site is approximately 0.005 acre, adverse impacts are not expected for terrestrial wildlife potentially exposed to bis(2-ethylhexyl)phthalate in subsurface soil at SWMU 147.

14.4.4 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Twenty-three constituents, including three VOCs (i.e., chloroform; 2-chlorophenol; and trichloroethylene), eight SVOCs (i.e., butyl benzyl phthalate; bis[2-ethylhexyl]phthalate [0-2 ft depth interval only]; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; napthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and three inorganics (i.e., cadmium; lead; and silver), were not detected, but had SQLs greater than the screening values. Because these 23 constituents were not detected in any sample collected from SWMU 147, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1990 and 1992, while analyzed using standard laboratory methods and

instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 18 year period. The high SQLs associated with the SWMU 147 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

14.4.5 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 147. After the SLERA, one constituent [bis(2-ethylhexyl)phthalate] was selected as a COPEC in combined surface and subsurface soil because the HQ was greater than 1. However, the only sample reporting a detected concentration of bis(2-ethylhexyl)phthalate was collected from a depth of 5 ft bgs, limiting potential exposure to only burrowing animals. In addition, the refined HQ is only slightly above 1 (i.e., 5) and is based on a conservative USEPA Region 4 ESL for total phthalates. When an alternative ESL of 0.925 mg/kg was obtained for bis(2-ethylhexyl)phthalate from USEPA Region 5 (USEPA, 2003d), a refined HQ less than 1 was calculated.

Based on this information, adverse impacts are not expected for terrestrial wildlife potentially exposed to bis(2-ethylhexyl)phthalate in subsurface soil at SWMU 147.

14.5 SWMU 147 Summary and Conclusions

The results of this data screening process indicate that after comparison to health-based soil screening levels for resident and site worker exposure, no COPCs were selected for surface soil at SWMU 147. In addition, the results of the data screening process also indicated that after comparison to health based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 147. This demonstrates that the constituent concentrations in surface soil and combined surface and subsurface soil at SWMU 147 are unlikely to result in adverse health impacts to the identified potential current and future receptors.

Additionally, no COPCs were selected for saturated vadose zone soil water, indicating that vapor intrusion from saturated vadose zone soil water is unlikely to result in adverse health impacts. However, nine volatile compounds in total soil were selected as COPCs for the vapor intrusion evaluation. The findings of the vapor intrusion evaluation indicated that:

- Under hypothetical future conditions, the ELCR and HI are within or below acceptable target ~~risk~~ ranges for site worker and resident exposure to indoor air containing VOCs originating from total soil (i.e., vadose zone).~~; and~~

- ~~Under hypothetical future conditions, the ELCR was within the acceptable target risk range for resident exposure to indoor air containing VOCs originating from total soil (i.e., vadose zone). However, the non-cancer HI was above the acceptable benchmark of 1, primarily due to naphthalene detected in samples collected at depths greater than 15 ft bgs. After further examination of naphthalene at SWMU 147, the potential for the site to represent a significant concern via the vapor intrusion pathway in the future is considered low, and additional evaluation is considered unneccessary.~~

A SLERA and BERA were completed for SWMU 147 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in subsurface soil. The results of the SLERA and BERA for direct contact exposure indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMU 147 is warranted.

There are no adverse environmental impacts associated with SWMU 147 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

~~There are no current environmental impacts associated with SWMU 147as a result of historical site activities. However, potential future residential development of the site may result in potential indoor air exposures that are above the regulatory benchmark for noncancer hazards if all exposure assumptions are met. It is important to reiterate that the scenarios for which unacceptable risks and/or hazards were calculated are all hypothetical future scenarios. There are no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 147.~~

15. SWMU 148

15.1 Site Description and History

The former MAR Waste Stabilization Pond (SWMU 148) consisted of an unlined pond with an earthen berm that was used to treat sewage effluent and possibly industrial wastewater generated by the former MAR facilities. The unit was 110 feet by 130 feet and 7 feet deep, and is located beneath the south end of the current HELSTF Equipment Storage Area (SWMU 141). The pond was filled in and graded in 1981. The overlying Equipment Storage Area was paved in 1990.

The MAR Waste Stabilization Pond was constructed in 1962. During 1981, the unit was backfilled and graded during the construction of the existing HELSTF facilities. A new stationary treatment system (SWMU~~s~~ 27~~ through 30~~) was constructed as a replacement.

15.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of the soil and groundwater data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment datasets for soil and groundwater for SWMU 148 were prepared then summarized and statistically analyzed per methods described in Section 2. Risk assessment data sets summarizing the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.15.Data-1 through E.15.Data-4.

15.2.1 Surface Soil (0 to 2 ft bgs)

Fourteen soil samples, including one duplicate sample, were collected in the 0 to 2 foot depth interval as part of the 1993 investigation. Analytical results for these soil samples are summarized in Table E.15.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. One VOC and six inorganics were detected within this data set.

15.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Forty-nine soil samples, including three duplicate samples, were collected in the 0 to 10 foot depth interval as part of the 1992 and 1993 investigations. Analytical results for these soil samples are summarized in Table E.15.Data-2. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC and six inorganics were detected within this data set.

15.2.3 Total Soil (0 to 19 ft bgs)

Fifty-seven soil samples, including four duplicate samples, were collected in the 0 to 19 foot depth interval as part of the 1992, 1993, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.15.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. Two VOCs, one SVOC, and eleven inorganics were detected within this data set.

15.2.4 Saturated Vadose Zone Soil Water

Seventeen saturated vadose zone soil water samples were collected as part of the 2004, 2005, 2006, 2007, and 2008 investigations. Analytical results for these soil water samples are summarized in Table E.15.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Four VOCs, two explosives, and thirty inorganics were detected within this data set.

15.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 148. The risk assessment approach was discussed in Section 2.2 of this appendix.

15.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs

exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration ([represented by the maximum reported concentration as an initial step)], and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and noncarcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

15.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.15.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 feet bgs) at SWMU 148 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratios~~ screening risks for carcinogenic effects were 2×10^{-5} and ~~0.05~~5×10^{-6} for residential and industrial scenarios, respectively at SWMU 148. The total ~~ratios~~ screening hazard indices for non-carcinogenic effects were ~~0.02~~0.2 and

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~~0.002~~0.02 for residential and industrial scenarios, respectively. The total screening risk for the residential scenario is greater than the NMED target risk of 1 x 10^{-5}. The total screening risk for the industrial scenario is less than the NMED target risk of 1 x 10^{-5}. The total ~~ratios~~ screening hazard indices are less than the NMED target ~~ratio~~ hazard index of 1~~, with the exception of the carcinogenic effect ratio for the residential scenario~~.

Because the total ~~ratio~~ screening risk (using the maximum concentration) for carcinogenic effects was greater than 1 x 10^{-5} for the residential scenario, the ~~the~~ total ~~ratios~~ screening risk using UCLs were calculated. For the residential scenario, the total ~~ratios~~ screening risk ~~of UCL to SSL~~ for carcinogenic ~~and non-carcinogenic~~ effects ~~were~~ was 1 x 10^{-5} ~~and 0.2, respectively~~. ~~These~~ This total ~~ratios~~ screening risk ~~are~~is equal to ~~or less than~~ the NMED target ~~ratio~~ risk of 1 x 10^{-5}.

As summarized in Table E.15.HHRA-2, no COPCs were identified for surface soil at SWMU 148. This indicates that the constituent concentrations in surface soil at SWMU 148 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMU 148 is not evaluated further in this HHRA.

15.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ratio method. Table E.15.HHRA-3 presents the results of the screening process.

The maximum concentrations of constituents in combined surface and subsurface soil (0 to 10 feet bgs) at SWMU 148 were compared to the construction worker SSLs. The total ~~ratios~~ screening risk for carcinogenic ~~and non-carcinogenic~~ effects ~~were 0.7 and 0.2, respectively~~could not be calculated because no chemicals classified as carcinogens were detected. The total ~~ratios~~ screening hazard index for ~~carcinogenic effects and~~ non-carcinogenic effects was 0.3. This total screening hazard index is ~~are~~ less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.15.HHRA-3, no COPCs were identified for combined surface and subsurface soil at SWMU 148. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 148 are unlikely to result in

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adverse health impacts to future construction workers. Therefore, potential exposure to surface and subsurface soil at SWMU 148 is not evaluated further in this HHRA.

15.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were considered for selection as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. As summarized in Table E.15.HHRA-4, two VOCs (i.e., acetone and dichloromethane) were detected in total soil at SWMU 148.

Acetone and dichloromethane are common laboratory contaminants. As discussed in Section 2.1 (Risk Assessment Data Sets), an analysis of the concentrations for these common laboratory contaminants was conducted. The analysis for this data set revealed that there is no evidence these constituents were associated with historical operations at SWMU 148 and the detected concentrations were less than 10 times the reported sample quantitation limit for the individual samples. Therefore, acetone and dichloromethane were eliminated from further consideration, and additional evaluation of the potential for soil to represent a concern via vapor intrusion is not necessary in this HHRA because no COPCs were identified (E.15.HHRA-4).

15.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels (USEPA, 2002a). Table E.15.HHRA-5 and Table E.15.HHRA-6 present the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.15.HHRA-5, the total ~~ratios~~ screening risk ~~of maximum concentrations to screening levels~~ for carcinogenic effects was 9×10^{-5} ~~and non-carcinogenic effects were 9 and 0.0009, respectively at SWMU 148~~. It was not possible to calculate the total screening hazard index ~~index for non-carcinogenic effects~~ because no ~~chemicals classified as~~ non-carcinogenic toxicity values were available for the COPCs~~s were detected at SWMU 148~~. Because the total ~~ratio~~ screening risk (using the maximum concentration) for carcinogenic effects is higher than the NMED target ~~ratio~~ risk of 1×10^{-5}, the ~~the~~ total ~~ratios~~ screening risk using UCLs ~~were~~ was determined.

As summarized in Table E.15.HHRA-6, the total ~~ratios~~ screening risk calculated ~~of~~from UCLs ~~to screening levels~~ for carcinogenic effects ~~and non-carcinogenic effects were~~was ~~6 and 0.0006, respectively at SWMU 148~~7×10^{-5}. The total ~~ratio~~ screening risk for carcinogenic effects is greater than the NMED target ~~ratio~~ risk of 1×10^{-5}.

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Therefore, all detected VOCs in the saturated vadose zone soil water at SWMU 148 were identified as COPCs. As summarized in Table E.15.HHRA-7, the following constituents were identified as COPCs for the vapor intrusion evaluation: chloroform, chloromethane, 1,1-dichloroethane, and trichloroethylene.

15.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil, combined surface and subsurface soil, or total soil.

Four VOCs (chloroform, chloromethane, 1,1-dichloroethane, and trichloroethylene) were identified as COPCs for saturated vadose zone soil water to evaluate inhalation via vapor migration into a hypothetical future building.

15.3.3 Determination of Exposure Point Concentrations

Four volatile constituents were selected as COPCs in the saturated vadose zone soil water because the total ~~ratio~~ screening risk for carcinogenic effects was greater than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. The EPCs for these COPCs are summarized in Table E.15.HHRA-7.

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15.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Volatile COPCs for saturated vadose zone soil water were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 148 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 148. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 148 are summarized in the tables and subsections below.

15.3.4.1 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 148, and could be exposed to VOCs in saturated vadose zone soil water via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.15-HHRA-8 and E.15-HHRA-9. The ELCR and HI for site worker exposure to indoor air are presented in Tables E.15.HHRA-11.

The total cumulative ELCR for future site workers exposed to indoor air at ~~the~~ SWMU 148 is ~~2~~ 8 $\times$ 10^{-7}~~8~~, which is less than the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for site workers is ~~0.0003~~0.00009, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

15.3.4.2 Hypothetical Future Residents – Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 148 and could be exposed to VOCs in saturated vadose zone soil water via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Tables E.15.HHRA-12.

The total cumulative ELCR for a hypothetical age-adjusted future resident exposed to indoor air at SWMU 148 is ~~5~~ 4 $\times$ 10^{-7}, which is less than the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The total cumulative HI for a hypothetical future child resident is ~~0.0009~~0.0004, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

15.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

One SVOC (benzidine) was not detected in surface and combined surface and subsurface soil, but had some SQLs greater than the screening value. Because benzidine was not detected in any sample collected from SWMU 148, it is not possible to conduct a quantitative evaluation. However, it is unlikely that its presence would have a significant effect on the overall outcome of the risk assessment.

15.3.6 Human Health Risk Summary

15.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.~~-~~ ~~Similarly, the calculated screening hazards were also summed.~~ ~~ratios summed.~~The total screening risks were below the NMED target risk of 1 x 10^{-5}. The total ~~ratios~~screening hazards were less than the NMED target ~~ratio~~ hazard of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 148. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 148 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

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- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

15.3.6.2 Vapor Intrusion Scenarios

No VOCs were detected in total soil (i.e., vadose zone). Therefore no soil COPCs were identified for the future vapor intrusion evaluation at SWMU 148. However, there were 4 VOCs detected in shallow saturated vadose zone soil water. All detected VOCs in saturated vadose zone soil water were compared to the USEPA (2002) groundwater screening values that are protective of the vapor intrusion pathway. As summarized in Table E.15.HHRA-13, the total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

15.3.6.3 Overall HHRA Summary

The results of the data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMU 148. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 148 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Additionally, no VOCs were selected as COPCs in soil, indicating that vapor intrusion from soil is unlikely to represent an exposure concern. However, four VOCs in the saturated vadose zone soil water were selected as COPCs for the vapor intrusion evaluation. The findings of the vapor intrusion evaluation indicate that potential future industrial or residential development of the site would result in potential indoor air exposures that are below the regulatory benchmarks for cancer risks and non-cancer hazards. Based on these results, additional human health risk assessment is not warranted for SWMU 148.

15.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 148. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 148, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 148; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 148 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 148; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 148. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

15.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 148 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico.

SWMU 148 is located centrally within HELSTF and encompasses an area less than 0.5 acre. The SWMU consists of the former MAR waste pond that has been filled and paved with asphalt. This section describes the habitat at SWMU 148. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMU 148 is a former waste pond. It is bounded by SWMU 143 to the north, SWMU 141 to the south and west (SWMU 142), and by a concrete driveway to the east.

Terrestrial Habitat

No significant terrestrial habitat occurs on or surrounding SWMU 148. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 148 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., asphalt), SWMU 148 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

15.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 148 are summarized below.

15.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.15.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment. As summarized in Table E.15.ERA-1, one constituent, silver, was identified as a COPEC in surface soil.

15.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.15.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.15.ERA-2, one constituent, silver, was identified as a COPEC in combined surface and subsurface soil.

15.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPEC identified in the BERA (silver) was re-evaluated for both the surface soil and for the combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Tables E.15.ERA-3 through E.15.ERA-5). Since silver is bioaccumulative it was carried forward into the food chain models. The results of the refined HQ calculations for SWMU 148 are summarized in the subsections below.

15.4.3.1 Surface Soil

One COPEC (silver) in surface soil was carried forward into the BERA. Due to the low number of detections, a UCL was not calculated for silver. Therefore, the refined EPC equals the maximum detection (72.4 mg/kg) and the refined HQ for silver is greater than 1. The BERA results for the surface soil COPEC at SWMU 148 are presented in Table E.15.ERA-3 and are discussed below:

Silver – Four concentrations (ranging from 10.8 mg/kg to 72.4 mg/kg) were detected above the ESL (4.2 m/kg). Silver was not detected in background soil samples collected as part of the HELSTF wide background characterization report (Appendix F of the Revised Phase III RFI Report). Three of the four samples were collected from outside the SWMU 148 boundary but included in the data set for SWMU 148 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing silver (including the impacted area within adjacent SWMU 141) above its ESL is very limited (approximately 0.11 acre). The calculated HQ of 20 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 69 mg/kg to 930 mg/kg. Mammalian EcoSSLs for silver range from 14 mg/kg (based on insectivore diet of earthworms) to 1,500 mg/kg

(herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 69 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 69 mg/kg and the maximum detected concentration, the HQ for silver would be 1 indicating that adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model (Section 15.4.4), the calculated HQ values were all less than 1 with the exception of the desert shrew which had an HQ only slightly above 1 (i.e., 2). Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to silver at SWMU 148.

Silver was identified as bioaccumulative and evaluated in the terrestrial food chain model presented in Section 15.4.4.

15.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

One COPEC (silver) in combined surface and subsurface soil was carried forward into the BERA. When the refined EPC (26.86 mg/kg) was compared with the ESL (4.2 mg/kg), silver had a refined HQ greater than 1. The BERA results for the surface and subsurface soil COPEC at SWMU 148 are presented in Table E.15.ERA-4 and are discussed below:

Silver – Twelve samples reported detected concentrations (8.8 mg/kg to 74.8 mg/kg) above the ESL of 4.2 mg/kg. Silver was not detected in background soil samples collected as part of the HELSTF wide background characterization report (Appendix F of the Revised Phase III RFI Report). Five of the eight sample locations were collected from outside the SWMU 148 boundary but included in the data set based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing silver (including the impacted area within adjacent SWMU 141) above its ESL is very limited (approximately 0.3 acre). As discussed above, a more realistic ESL for silver at this site may be 69 mg/kg, based on effects to herbivorous birds. Using a screening level of 69 mg/kg and the EPC of 26.86 mg/kg, the HQ for silver would be 0.4 indicating that adverse ecological effects are unlikely if exposure was to occur. In addition, as discussed in the sections below, when this COPEC was further evaluated in the site-specific terrestrial food chain model for the desert kit fox, the calculated HQ values were less than 1. Based on these considerations, adverse impacts are not expected for terrestrial wildlife potentially exposed to silver in surface and subsurface soil at SWMU 148.

Silver was identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[7] presented in Section 15.4.4.

15.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 148 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The COPEC identified in soil (i.e., silver) was evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

15.4.4.1 Terrestrial Food Chain Models

Due to its location within an active testing facility and current landcover (i.e., asphalt), SWMU 148 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

As summarized in Tables E.15.ERA-20 and E.15.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, cactus wren, red-tailed hawk, Merriam's kangaroo rat and desert kit fox exposed to surface soil were less than or equal to 1 for silver. The refined scenario LOAEL and NOAEL HQs for the desert shrew exposed to surface soil were 2 and 18 respectively, indicating adverse impacts to individual mammals may occur if all exposure assumptions are met. However, considering that the more realistic scenario HQ (i.e., refined scenario) is only slightly above 1, and the limited number of individuals that might be impacted due to the small spatial extent of affected soil, adverse impacts are unlikely to occur for desert shrew, and for other insectivorous mammals, if exposed to silver in the future.

The refined scenario LOAEL and NOAEL HQs for the desert kit fox potentially exposed to both surface and subsurface soil were less than or equal to 1 for SWMU 148. These results indicate that if individual kit foxes (or other similar burrowing mammals) are

[7] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

exposed to this COPEC in the future, they are not expected to experience adverse effects.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to this bioaccumulative COPEC were to occur, then adverse effects are not expected for wildlife.

15.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Thirty-nine constituents, including four VOCs (i.e., chloroform; 2-chlorophenol; trichloroethylene; and vinyl chloride), eleven SVOCs (i.e., butyl benzyl phthalate; bis[2-chloroethoxy]methane; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine [0-10 ft depth interval only]; 2,4-dimethylphenol; diphenylamine; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine [0-10 ft depth interval only]; 2-methyl-4,6-dinitrophenol; and pentachlorophenol [0-10 ft depth interval only]), nine PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 1-chloronaphthalene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), five pesticides [0-10 ft depth interval only] (i.e., aldrin; dieldrin; endosulfan I; endosulfan II; and 1,1,1-trichloro-2,2-bis[p-methoxphenyl]ethane), seven PCBs [0-10 ft depth interval only] (i.e., Aroclor 1221; Aroclor 1232; Aroclor 1242; Aroclor 1254; Aroclor 1260; Aroclor 1016; and Aroclor 1248), one explosive (i.e., 2,6-dinitrotoluene), and two inorganics (i.e., cadmium and selenium), were not detected, but had SQLs greater than the screening values in some samples collected primarily from 1992 and 1994. Because these 39 constituents were not detected in any sample collected from SWMU 148, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1994, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 148 dataset are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

15.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 148. After the SLERA, one constituent (i.e., silver) was selected as a COPEC in surface soil and in combined surface and subsurface soil because the HQs were greater than 1. In the BERA, silver was retained for further evaluation in the food chain modeling since it was identified as bioaccumulative.

Tables E.15.ERA-20 and E.15.ERA-21 summarize the constituents in surface soil and in combined surface and subsurface soil that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than or equal to 1 with the exception of the desert shrew which had a refined HQ slightly above 1. However, the affected area of silver with refined HQs greater than 1 for the desert shrew has a very limited spatial extent (less than 0.3 acre). Based on the overall analysis of the ERA for SWMU 148, the results indicate that if exposure were to occur, then adverse effects are not expected for wildlife that may access the site.

It is important to reiterate here that the above assessment is for a hypothetical future scenario and only applies if the site was redeveloped and the asphalt covering removed. There are no ecologically significant current risks at SWMU 148 because of the following reasons:

The site is currently covered by asphalt which eliminates the exposure pathway for wildlife via a physical barrier.

The affected area is very limited in spatial extent (less than 0.3 acre). Therefore, exposure by terrestrial wildlife is not expected to cause adverse impacts to exposed receptors.

15.5 SWMU 148 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 148. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 148 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

No VOCs were detected in total soil (i.e., vadose zone). Therefore, no soil COPCs were identified for the future vapor intrusion evaluation at SWMU 148. However, there were 4 VOCs detected in shallow saturated vadose zone soil water. All detected VOCs in saturated vadose zone soil water were compared to the USEPA (2002) groundwater screening values that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

A SLERA and BERA were completed for SWMU 148 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil, and to conduct food chain modeling for the COPEC identified as bioaccumulative (i.e., silver). The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that there are no significant current exposures to soil and future impacts are unlikely to occur for ecological receptors potentially exposed to

constituents in soil. Therefore, no further ecological evaluation at SWMU 148 is warranted.

There are no adverse environmental impacts associated with SWMU 148 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

16. SWMU 149

16.1 Site Description and History

The HELSTF Maintenance Building (26121) Septic System (SWMU 149) is located 540 feet southeast of the LSTC and consists of a 200-gallon subsurface septic tank and two 4-inch drainage lines that are 30 feet in length. The associated fenced drain field is approximately 70 ft by 30 ft. Only wastewater from Building 26121 is treated in the septic system.

SWMU 149 is currently active and has been operating since the 1960's.

16.2 Risk Assessment Data set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone soil water for SWMU 149 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.16.Data-1 through E.16.Data-3.

16.2.1 Surface Soil (0 to 2 ft bgs)

Soil samples in the 0 to 2 foot depth interval were not required to be collected at SWMU 149 for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 149 was not identified as a medium of concern.

16.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Two soil samples were collected in the 0 to 10 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.16.Data-1. Combined surface and subsurface soil was analyzed for VOCs,

SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC and one inorganic were detected within this data set.

16.2.3 Total Soil (0 to 20 ft bgs)

Five soil samples, including one duplicate sample, were collected in the 0 to 20 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.16.Data-2. Total soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC and three inorganics were detected within this data set.

16.2.4 Saturated Vadose Zone Soil Water

Four saturated vadose zone soil water samples were collected as part of the 2006 and 2008 investigations. Analytical results for these soil water samples are summarized in Table E.16.Data-3. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Two VOCs and eleven inorganics were detected within this data set.

16.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMU 149. The risk assessment approach was discussed in Section 2.2 of this appendix.

16.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration ([represented by the maximum reported concentration as an initial step)],

and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

16.3.1.1 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method discussed above. Table E.16.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in combined surface and subsurface soil (0 to 10 feet bgs) at SWMU 149 were compared to the construction worker SSLs. The total ~~ratio~~ screening risk for carcinogenic effects cannot be determined because no constituents contributing to the total ~~carcinogenic effect ratio~~screening risk were detected. The total ~~ratio~~ screening hazard for non-carcinogenic effects was ~~0.009~~0.01 for the construction worker scenario. The total ~~ratio~~ screening hazard is less than the NMED target ~~ratio~~ hazard of 1 for non-carcinogenic effects.

16.3.1.2 Total Soil

All detected VOCs in the total soil (i.e., vadose zone) were considered for selection as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Acetone was the only VOC detected

in total soil. Acetone is a common laboratory contaminant. As discussed in Section 2.1 (Risk Assessment Data Sets), an analysis of the concentrations for this common laboratory contaminant was conducted. The analysis for this data set revealed there is no evidence that this constituent was associated with historical operations at SWMU 149 and the detected concentrations were less than 10 times the reported sample quantitation limit for the individual samples. Therefore, acetone was eliminated from further consideration, and no COPCs were identified for total soil (vadose zone). Potential exposure to vapors in indoor air from volatile compounds in soil is not evaluated further in this HHRA because no COPCs were identified (Table E.16.HHRA-2).

16.3.1.3 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels (USEPA, 2002a). Table E.16.HHRA-3 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.16.HHRA-3, the total ~~ratios~~ screening risk for ~~cancer~~ carcinogenic effects was 4×10^{-6} and the total screening hazard for non-carcinogenic effects ~~were 0.4 and~~was 0.005, ~~respectively,~~ at SWMU 149. The total ~~ratios are~~screening risk is less than the NMED target risk of 1×10^{-5}. The total screening hazard is less than the NMED target ~~ratio~~ hazard of 1. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMU 149 is not evaluated further in this HHRA.

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16.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for combined surface and subsurface soil, total soil, or saturated vadose zone soil water at SWMU 149.

16.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

One SVOC (benzidine) was not detected in surface and combined surface and subsurface soil, but had some SQLs greater than the screening value. Because benzidine was not detected in any sample collected from SWMU 149, it is not possible to conduct a quantitative evaluation. However, it is unlikely that its presence would have a significant effect on the overall outcome of the risk assessment.

16.3.4 Human Health Risk Summary

16.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil, and combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks~~ ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens.. ~~Similarly, the calculated target hazard indices for non-carcinogenic effects were also ratios summed.~~ The total ~~ratios~~ screening risks were less than the NMED target ~~ratio~~ risk of 1 x 10^{-5}. The total screening hazard index was less than the NMED target hazard index of 1. The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 149. This demonstrates that the constituent concentrations in combined surface and subsurface soil (0 to 10 ft bgs) at SWMU 149 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

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No surface soil (0 to 2 ft bgs) data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to surface soil at SWMU 149 by site workers or future residents is not expected to represent an exposure concern.

16.3.4.2 Vapor Intrusion Scenarios

The results of this data screening process indicate that after comparison to health-based screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water ~~and total soil~~ at SWMU 149. In addition, no COPCs were selected for total soil at SWMU 149. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMU 149 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

16.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected

for combined surface and subsurface soil at SWMU 149. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 149 are unlikely to result in adverse health impacts to the identified potential future receptors. No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to surface soil at SWMU 149 by site workers or future residents is not expected to represent an exposure concern.

Additionally, no COPCs were selected for saturated vadose zone soil water and total soil at SWMU 149, indicating that vapor intrusion is unlikely to result in adverse health impacts. Based on these results, additional human health risk assessment is not warranted for SWMU 149.

16.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMU 149. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000a; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 149, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 149; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 149 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 149; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 149. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

16.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 149 is the maintenance building septic system located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMU 149 is a septic system. The area is surrounded by a gravel drive and bounded by the waste oil accumulation area (SWMU 37) and HELSTF infrastructure to the

north. Effluent settling ponds are located to the south beyond the gravel road. SWMU 149 is surrounded by a 4 foot (approximate) fence.

Terrestrial Habitat

Dense herbaceous vegetation covers the area within SWMU 149. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 149 are provided in Attachment B.

SWMU 149 covers an area approximately 0.05 acre. Terrestrial habitat within SWMU 149 consists of dense herbaceous vegetation that ranged in height from 0.5 to 2 feet during the site reconnaissance in March 2009 (Attachment A).

Due to the low diversity of the herbaceous species at SWMU 149, it does not appear to support a diversity of wildlife. Insects (winged and ground-level) and song birds were observed within SWMU 149.

16.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 149 are summarized below.

16.4.2.1 Surface Soil

As discussed previously, no surface soil (0 to 2 ft bgs) data were required to be collected at SWMU 149 for the Phase I, II, or III RFI investigations. Therefore, surface soil at SWMU 149 was not identified as a medium of concern.

16.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil (0 to 10 ft bgs) COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2.

Table E.16-ERA-1 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

The results of the data screening indicate that no COPECs were identified for combined surface and subsurface soil at SWMU 149.

16.4.2.3 Summary of COPEC Selection

The available soil data (combined surface and subsurface soil) for SWMU 149 were compared with the appropriate ecological screening levels. No soil COPECs were identified for SWMU 149. Based on these results, it has been determined that there is adequate information to conclude that current and future ecological risks are unlikely and no further action is warranted at SWMU 149.

16.4.3 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Thirty-three constituents, including two VOCs (i.e., chloroform and trichloroethylene), seven SVOCs (i.e., butyl benzyl phthalate; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; and n-methyl-n-nitrosomethanamine), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), five pesticides (i.e., aldrin; dieldrin; endosulfan sulfate; endrin; and 1,1,1-trichloro-2,2-bis[p-methoxphenyl]ethane), seven PCBs (i.e., Aroclor 1221; Aroclor 1232; Aroclor 1242; Aroclor 1254; Aroclor 1260; Aroclor 1016; and Aroclor 1248), one explosive (i.e., 2,6-dinitrotoluene), and three inorganics (i.e., cadmium; lead; and silver), were not detected, but had some SQLs greater than the screening values. Because these 33 constituents were not detected in any sample collected from SWMU 149, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1994, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMU 149 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

16.4.4 Ecological Risk Summary

A screening-level risk assessment was completed for SWMU 149. Based on the analysis of available information, there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the soil. Therefore, no further ecological evaluation at SWMU 149 is warranted.

16.5 SWMU 149 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMU 149. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMU 149 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMU 149 was not identified as a medium of concern.

The results of the data screening process indicate that after comparison to health-based groundwater screening levels for protection of indoor air, no COPCs were selected for saturated vadose zone soil water. In addition, no COPCs were selected for ~~and~~ total soil at SWMU 149. This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMU 149 are unlikely to result in adverse health impacts to future site workers and hypothetical future residents via inhalation of indoor air.

SWMU 149

A SLERA was completed for SWMU 149, to evaluate surface soil and subsurface soil for ecological receptors. The results of the SLERA indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in the subsurface soil. Therefore, no further ecological evaluation at SWMU 149 is warranted.

There are no adverse environmental impacts associated with SWMU 149 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

17. SWMU 150

17.1 Site Description and History

There is very little information available pertaining to the former MAR Dump Site (SWMU 150). The site is located approximately ½ mile northeast of the HELSTF Test Cell Area (TCA) and consisted of an open landfill trench approximately 225 ft by 35 ft by 8 ft deep. Associated with the trench is an approximately 50 ft diameter spoil pile of excavated soil that is located 40 ft northwest of the trench.

The site is inactive and reportedly was used as a landfill in the 1960s during the operation of the MAR Facility (ITC 1992a,b). The trench was partially filled with building materials and discarded paint.

17.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil data collected during multiple RFI phases. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil for SWMU 150 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.17.Data-1 through E.17.Data-3.

17.2.1 Surface Soil (0 to 2 ft bgs)

Nine soil samples were collected in the 0 to 2 foot depth interval as part of the 1992 and 2006 investigations. Analytical results for these soil samples are summarized in Table E.17.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, explosives, and inorganics. Seven inorganics were detected within this data set.

17.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Twelve soil samples, including one duplicate sample, were collected in the 0 to 10 foot depth interval as part of the 1992 and 2006 investigations. Analytical results for these soil samples are summarized in Table E.17.Data-2. Surface and subsurface soil was

analyzed for VOCs, SVOCs, PAHs, explosives, and inorganics. Seven inorganics were detected within this data set.

17.2.3 Total Soil (0 to 75 ft bgs)

Twenty-eight soil samples, including two duplicate samples, were collected in the 0 to 75 foot depth interval as part of the 1992 and 2006 investigations. Analytical results for these soil samples are summarized in Table E.17.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, explosives, and inorganics. Seven inorganics were detected within this data set.

17.2.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water samples were not required to be collected at SWMU 150 for the Phase I, II or III RFI investigations, and as a result, analytical results are not available for this data set.

17.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples collected from SWMU 150. The risk assessment approach was discussed in Section 2.2 of this appendix.

17.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~(~~represented by the maximum reported concentration as an initial step~~)~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for

carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1 x 10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and noncarcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

17.3.1.1 Surface Soil

Surface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method as described above. Table E.17.HHRA-1 presents the results of the screening process.

The maximum concentrations of constituents in surface soil (0 to 2 feet bgs) at SWMU 150 were compared to the residential and industrial soil screening levels (SSLs). The total ~~ratios~~ screening risks for carcinogenic effects were ~~0.4~~4 x 10^{-6} and ~~0.08~~8 x 10^{-7} for residential and industrial scenarios, respectively at SWMU 150. The total ~~ratios~~ screening hazard indices for non-carcinogenic effects were ~~0.06~~0.1 and ~~0.005~~0.01 for residential and industrial scenarios, respectively. The total screening risks are below the NMED target risk of 1 x 10^{-5}. The total ~~ratios~~ screening hazard indices are less than the NMED target ~~ratio~~ hazard index of 1.

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As summarized in Table E.17.HHRA-1, no COPCs were identified for surface soil at SWMU 150. This indicates that the constituent concentrations in surface soil at SWMU 150 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMU 150 is not evaluated further in this HHRA.

17.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ratio method. Table E.17.HHRA-2 presents the results of the screening process.

The maximum concentrations of constituents in surface and subsurface soil (0 to 10 feet bgs) at SWMU 150 were compared to the construction worker SSLs. The total screening risk for carcinogenic effects cannot be determined because no constituents contributing to the total ~~carcinogenic effect ratio~~screening risk were detected. The total ~~ratios~~ screening hazard index for ~~carcinogenic and~~ non-carcinogenic effects ~~were~~ was ~~0.3 and 0.03, respectively~~0.1. The total ~~ratios~~ screening hazard index ~~are~~is less than the NMED target ~~ratio~~ hazard index of 1.

As summarized in Table E.17.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMU 150. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 150 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to surface and subsurface soil at SWMU 150 is not evaluated further in this HHRA

17.3.1.3 Total Soil

No VOCs were detected in total soil (i.e., vadose zone). Therefore, no COPCs were identified for the vapor intrusion evaluation from total soil.

17.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil or for combined surface and subsurface soil for direct contact exposure.

No COPCs were selected for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

17.3.3 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

Two SVOCs (benzidine and n-methyl-n-nitroso methanamine) were not detected in the surface soil, but had some SQLs greater than the screening values. One SVOC (benzidine) was not detected in combined surface and subsurface soil, but had some SQLs greater than the screening value. Because these two constituents were not detected in any sample collected from SWMU 150, it is not possible to conduct a quantitative evaluation. However, it is unlikely that their presence would have a significant effect on the overall outcome of the risk assessment.

17.3.4 Human Health Risk Summary

17.3.4.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks~~ ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated target hazard indices for non-carcinogenic effects were also summed.~~ The total screening risks were less than the NMED target risk of 1 x 10^{-5}. The total screening hazard indices were less than the NMED target hazard index of 1. ~~ratios summed. The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 150. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 150 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

17.3.4.2 Vapor Intrusion Scenarios

No VOCs were detected in total soil. Therefore, no COPCs were selected for total soil at SWMU 150. This demonstrates that the constituent concentrations in total soil at SWMU 150 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

17.3.4.3 Overall HHRA Summary

The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil, or for combined surface and subsurface soil at SWMU 150. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 150 are unlikely to result in adverse health impacts to the identified current and potential future receptors. Additionally, no VOCs were detected in soil, indicating that vapor intrusion is unlikely to result in adverse health impacts. Based on these results, additional human health risk assessment is not warranted for SWMU 150.

17.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and in combined surface and subsurface soil at SWMU 150. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000b; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 150, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 150; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 150 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMU 150; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 150. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

17.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 150 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 150 is located in the northeast corner of the HELSTF and encompasses an

area of approximately 0.3 acre. SWMU 150 is the former MAR dump site. It is surrounded by open areas and desert basin shrub habitat. SWMUs 38 and 39 are located approximately 1000 feet southwest of SWMU 150.

This section describes the habitat at SWMU 150. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

Terrestrial Habitat

Dense desert shrub habitat occurs within SWMU 150. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 150 are provided in Attachment B.

Terrestrial habitat within SWMU 150 consists of typical desert basin shrub vegetation found throughout the area (Attachment A). At the time of the ecological reconnaissance in March 2009, the average height of shrubs ranged from 1 to 2 feet. Dominant shrubs identified within SWMU 150 consisted primarily of 4-winged saltbush (*Atriplex canescens*) and mormon tea (*Ephedra torreyana*). Another species identified within the SWMU include sand dropseed grass *(Sporobolus nealii)*.

The vegetation at SWMU 150 appears to support a diversity of wildlife. In addition to many types of insects (winged and ground-level), song birds and jackrabbits (*Lepus californicus*) were observed within the area during the ecological reconnaissance.

17.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA, 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 150 are summarized below.

17.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.15.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment. As summarized in Table E.17.ERA-1, three constituents (lead, mercury, and silver) were identified as COPECs in surface soil.

17.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.17.ERA-2 presents the selection of surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.15.ERA-2, three constituents (lead, mercury, and silver) were identified as COPECs in combined surface and subsurface soil.

17.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPECs identified in the SLERA were re-evaluated for both the surface soil and for the combined surface and subsurface soil data sets by calculating refined HQs. The refined HQs were calculated for the COPECs using refined EPCs (shown in Tables E.17.ERA-3 through E.17.ERA-5). Since lead, mercury, and silver are bioaccumulative, they were also carried forward into the food chain models. The results of the refined HQ calculations for SWMU 150 are summarized in the subsections below.

17.4.3.1 Surface Soil

The three COPECs (lead, mercury, and silver) in surface soil were carried forward into the BERA. Due to the low number of detections, UCL concentrations were not calculated for these COPECs. Therefore, the refined EPC equals the maximum detections and the refined HQs for lead, mercury, and silver are greater than 1. The BERA results for direct contact exposure to the surface soil COPECs at SWMU 150 are presented in Table E.17.ERA-3 and are discussed below:

Lead – Four concentrations (ranging from 13.3 mg/kg to 58 mg/kg) were detected above the ESL (11 m/kg). Two of the four samples were collected from outside the

SWMU 150 boundary but included in the data set for SWMU 150 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing lead above its ESL is very limited (approximately 0.3 acre). The calculated HQ of 5 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 46 mg/kg to 510 mg/kg. Mammalian EcoSSLs for lead range from 56 mg/kg (based on insectivore diet of earthworms) to 1,200 mg/kg (herbivorous mammal). As mentioned previously, for all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 46 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 46 mg/kg and the maximum detected concentration of 58 mg/kg, the HQ for lead is 1 (rounded to nearest whole number) indicating that adverse ecological effects are unlikely if exposure was to occur.

Mercury – Three concentrations (ranging from 0.11 mg/kg to 0.3 mg/kg) were detected above the ESL (0.1 m/kg). The areal extent of samples containing mercury above the ESL is very limited (approximately 0.3 acre). The calculated HQ of 3 is based on an ESL derived by Efroymson et al (1997a) for the toxicity of mercury to soil invertebrates (i.e., earthworms). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Efroymson et al. (1997) used a lowest observed effect concentration (LOEC) (based on survival) of 0.5 mg/kg and applied an uncertainty factor of 5. The benchmark of 0.1 mg/kg has low confidence due to the limited amount of data. Given the conservative assumptions in the ESL, and considering the limited areal extent of samples containing mercury above its ESL, adverse impacts are not expected for wildlife potentially exposed to mercury at SWMU 150.

Silver – Four concentrations (ranging from 6.1 mg/kg to 7.6 mg/kg) were detected above the ESL (4.2 m/kg). The areal extent of samples containing silver above the ESL is very limited (approximately 0.3 acre). The calculated HQ of 2 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 69 mg/kg to 930 mg/kg. Mammalian EcoSSLs for silver range from 14 mg/kg (based on insectivore diet of earthworms) to 1,500 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 69 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 69 mg/kg and the maximum detected concentration, the HQ for silver is less than 1 indicating that adverse

ecological effects are unlikely if exposure was to occur. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to silver at SWMU 150.

Lead, mercury and silver were identified as bioaccumulative and evaluated in the terrestrial food chain model presented in Section 17.4.4.

17.4.3.2 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

Three COPECs in combined surface and subsurface soil were carried forward into the BERA. Due to the low number of detections, UCL concentrations were not calculated for these COPECs. Therefore, the refined EPCs equal the maximum detected concentrations and the refined HQs for lead, mercury, and silver are greater than 1. The BERA results for the combined surface and subsurface soil COPEC at SWMU 150 are presented in Table E.17.ERA-4 and are discussed below:

Lead – Four concentrations (ranging from 13.3 mg/kg to 58 mg/kg) were detected above the ESL (11 m/kg). Two of the four samples were collected from outside the SWMU 150 boundary but included in the data set for SWMU 150 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing lead above its ESL is very limited (approximately 0.3 acre). The calculated HQ of 5 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 46 mg/kg to 510 mg/kg. Mammalian EcoSSLs for lead range from 56 mg/kg (based on insectivore diet of earthworms) to 1,200 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 46 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 46 mg/kg and the maximum detected concentration of 58 mg/kg, the HQ for lead is 1 indicating that adverse ecological effects are unlikely if exposure was to occur.

Mercury – Four concentrations (ranging from 0.11 mg/kg to 0.3 mg/kg) were detected above the ESL (0.1 m/kg). The areal extent of samples containing mercury above the ESL is very limited (approximately 0.3 acre). The calculated HQ of 3 is based on an ESL derived by Efroymson et al (1997a) for the toxicity of mercury to soil invertebrates (i.e., earthworms). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Efroymson et al. (1997) used a lowest observed effect concentration (LOEC) (based on survival) of 0.5 mg/kg and applied an

uncertainty factor of 5. The benchmark of 0.1 mg/kg has low confidence due to the limited amount of data. Given the conservative assumptions in the ESL, and considering of the limited areal extent of samples containing mercury above its ESL, adverse impacts are not expected for wildlife potentially exposed to mercury in surface and subsurface soil at SWMU 150.

Silver – Four concentrations (ranging from 6.1 mg/kg to 7.6 mg/kg) were detected above the ESL (4.2 m/kg). The areal extent of samples containing silver above the ESL is very limited (approximately 0.3 acre). The calculated HQ of 2 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 69 mg/kg to 930 mg/kg. Mammalian EcoSSLs for silver range from 14 mg/kg (based on insectivore diet of earthworms) to 1,500 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 69 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 69 mg/kg and the maximum detected concentration, the HQ for silver would be less than 1 indicating that adverse ecological effects are unlikely if exposure was to occur. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to silver in surface and subsurface soil at SWMU 150.

Lead, mercury and silver were identified as bioaccumulative and evaluated in the terrestrial food chain model for the kit fox[8] presented in Section 17.4.4.

17.4.4 Refinement of Assessment and Measurement Endpoints for Bioaccumulative COPECs

Food chain modeling was conducted at SWMU 150 in order to evaluate the potential ecological effects of the bioaccumulative COPEC in soil on the receptors identified in Section 2.3. The COPECs identified in soil (i.e., lead, mercury, and silver) were evaluated in the terrestrial food chain. The results for the refined scenarios of these models are discussed below.

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[8] As discussed in Section 2, a desert kit fox can burrow to a depth of 3 meters and may be exposed to surface and subsurface soil (0 to 10 ft bgs).

17.4.4.1 Terrestrial Food Chain Model

As summarized in Tables E.17.ERA-20 and E.17.ERA-21, the refined scenario LOAEL and NOAEL HQs for the mourning dove, cactus wren, red-tailed hawk, Merriam's kangaroo rat and desert kit fox exposed to soil were less than or equal to 1 for lead, mercury, and silver. Based on these results, adverse impacts are not expected for mourning dove (and for other herbivorous birds), cactus wren (and for other invertivorous birds), red tailed hawk (and for other carnivorous birds), Merriam's kangaroo rat (and other herbivorous mammals), and desert kit fox (and other invertivorous mammals) potentially exposed to lead, mercury and silver in surface and subsurface soil at SWMU 150.

For the desert shrew, the refined scenario LOAEL and NOAEL HQs for mercury and silver were 0.2 and 2 respectively (mercury), and 0.3 and 3 respectively (silver). However, considering that the LOAEL HQs are below 1 and the NOAEL HQs are only marginally above 1, and that the areal extent of affected soil at SWMU 150 is small, adverse impacts are unlikely to occur for desert shrew, and for other insectivorous mammals, if exposed to mercury and silver at SWMU 150.

Based on the overall analysis of terrestrial food chain modeling HQs, including the limited spatial extent of the affected soil, if exposure to these bioaccumulative COPECs were to occur, then adverse effects are not expected for wildlife potentially accessing SWMU 150.

17.4.5 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Twenty-four constituents, including four VOCs (i.e., chloroform; 2-chlorophenol; 1,2-dibromo-3-chloropropane; and trichloroethylene), nine SVOCs (i.e., benzyl butyl phthalate; bis[2-chloroethoxy]methane; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; napthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and two inorganics (i.e., cadmium and selenium), were not detected, but had some SQLs greater than the screening values. Because these 24 constituents were not detected in any sample collected from SWMU 150, it is

not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 17 year period. The high SQLs associated with the SWMU 150 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with the historical data are considered a minor uncertainty in the risk assessment.

17.4.6 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 150. After the SLERA, three constituents (i.e., lead, mercury, and silver) were selected as COPEC in surface soil and in combined surface and subsurface soil because the HQs were greater than 1. In the BERA, lead, mercury, and silver were retained for further evaluation in the food chain modeling since they were identified as bioaccumulative.

Tables E.17.ERA-20 and E.17.ERA-21 summarize the constituents in surface soil and in combined surface and subsurface soil that were carried through the BERA and evaluated in the terrestrial food chain model. As shown in these tables, all receptors evaluated in the terrestrial food chain refined scenarios had LOAEL and NOAEL HQs less than or equal to 1 with the exception of the desert shrew. The desert shrew had refined NOAEL HQs slightly above 1, and refined LOAEL HQs less than 1 for mercury and silver. However, considering that the LOAEL HQs are below 1, and the NOAEL HQs are only marginally above 1 (for mercury and silver), and that the areal extent of affected soil at SWMU 150 is small, adverse impacts are unlikely to occur for desert shrew, and for other insectivorous mammals, if exposed to mercury and silver at SWMU 150. Based on the overall analysis of the ERA for SWMU 150, the results indicate that if soil exposure were to occur, then adverse effects are not expected for wildlife that may access the site.

17.5 SWMU 150 Summary and Conclusions

An HHRA was conducted to evaluate exposure to COPCs in surface soil, combined surface and subsurface soil, total soil, and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 150. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 150 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

No VOCs were detected in total soil. Therefore, no COPCs were selected for total soil at SWMU 150. This demonstrates that the constituent concentrations in total soil at SWMU 150 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

A SLERA and BERA were completed for SWMU 150 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil, and to conduct food chain modeling for the COPECs identified as bioaccumulative. The results of the SLERA and BERA for direct contact exposure and for food chain modeling indicate there is adequate information to conclude that there are no significant current exposures to soil and future impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMU 150 is warranted.

There are no adverse environmental impacts associated with SWMU 150 as a result of historical site activities and no restrictions need to be applied to current or potential

future land use at the site. Accordingly the site is recommended for no further action and should be closed out of the RCRA process.

18. SWMUs 151 and 152

18.1 Site Description and History

SWMU 151 is the Trailer Area Septic System located approximately 900 feet southeast of the LSTC. It is active; however office trailers that formerly discharged to this SWMU have been removed. Only the supply building currently uses the septic field. The approximate dimensions of the septic system are 40 ft by 110 ft.

SWMU 152 is the Property and Supply Building Septic System located approximately 50 feet south of Building 26145 and east of the HELSTF TCA. The site consists of a septic system and a drainfield. The approximate dimensions of SWMU 152 are 110 ft by 40 ft. This unit receives wastewater from Building 26145 and the Trailer Area.

SWMU 151 and SWMU 152 are currently active and have been operated since the 1980s.

18.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone water data for SWMUs 151 and 152 were compiled, summarized and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.18.Data-1 through E.18.Data-3.

18.2.1 Surface Soil (0 to 2 ft bgs)

Soil samples in the 0 to 2 foot depth interval were not required to be collected at SWMUs 151 and 152 for the Phase I, II and III RFI investigations. Therefore, surface soil at SWMUs 151 and 152 was not identified as a medium of concern.

18.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Four soil samples, including two duplicate samples, were collected in the 0 to 10 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.18.Data-1. Surface and subsurface soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC and one inorganic were detected within this data set.

18.2.3 Total Soil (0 to 19 ft bgs)

Eight soil samples were collected in the 0 to 19 foot depth interval as part of the 1992 investigation. Analytical results for these soil samples are summarized in Table E.18.Data-2. Total soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, PCBs, explosives, and inorganics. One VOC and two inorganics were detected within this data set.

18.2.4 Saturated Vadose Zone Soil Water

One saturated vadose zone soil water sample was collected as part of the 2006 investigation. Analytical results for this soil water sample are summarized in Table E.18.Data-3. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. One VOC and eight inorganics were detected within this data set.

18.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil and saturated vadose zone soil water samples collected from SWMUs 151 and 152. The risk assessment approach was discussed in Section 2.2 of this appendix.

18.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~[~~represented by the maximum reported concentration as an initial step)~~]~~, and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

18.3.1.1 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data with the appropriate screening levels as presented in Section 2.2.1 and applying the ~~ratio~~ screening method discussed above. Table E.18.HHRA.1 presents the results of the screening process.

The maximum concentrations of constituents in combined surface and subsurface soil (0 to 10 ft bgs) at SWMUs 151 and 152 were compared to the construction worker SSLs. The total screening risk for carcinogenic effects could not be determined because no constituents contributing to the total ~~carcinogenic effect ratio~~screening risk were detected. The total screening hazard index for non-carcinogenic effects was 0.01 for the construction worker scenario. Th~~e~~is total ~~ratio~~hazard index is less than the NMED target hazard index of 1 for non-carcinogenic effects. ~~The total ratios for cancer and non-carcinogenic effects were 0.01 and 0.000004, respectively, at SWMUs 151~~

~~and 152. The total ratios are less than the NMED target ratio of 1.~~ Therefore, potential exposure to combined surface and subsurface soil at SWMUs 151 and 152 is not evaluated further in this HHRA.

18.3.1.2 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were considered for selection as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. As summarized in Table E.18-HHRA-2, acetone was the only VOC detected in total soil at SWMUs 151 and 152. As discussed in Section 2.1, acetone is a common laboratory contaminant and according to the USEPA's Functional Guidelines for Organics, it can be eliminated from consideration in cases where there was no evidence that acetone was associated with historical operations at the SWMU and the detection was less than 10 times the reported sample quantitation limit for the individual sample. Detected concentrations of acetone in total soil at SWMUs 151 and 152 are greater than 10 times the associated quantitation limits. Therefore, acetone was selected as a COPC for total soil at SWMUs 151 and 152.

18.3.1.3 Saturated vadose zone soil water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.18.HHRA-3 presents the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.18.HHRA-3, the total ~~ratios~~ screening risk for ~~cancer~~ carcinogenic effects and the total screening hazard index for non-carcinogenic effects could not be determined because no volatile constituents were detected at SWMUs 151 and 152. Therefore, potential exposure to indoor air due to volatile compounds in saturated vadose zone soil water at SWMUs 151 and 152 is not evaluated further in this HHRA.

18.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil or combined surface and subsurface soil for direct contact.

One VOC (i.e., acetone) was identified as a COPC for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

No COPCs were selected for saturated vadose zone soil water to evaluate inhalation via vapor migration into a hypothetical future building.

18.3.3 Determination of Exposure Point Concentrations

One volatile constituent (i.e., acetone) was selected as a COPC in total soil because no screening levels for the vapor intrusion pathway were available. The EPC for this COPC is summarized in Table E.18-HHRA-4.

18.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Volatile COPCs for total soil were evaluated for inhalation via vapor migration into hypothetical future buildings. Because no buildings currently exist at SWMUs 151 and 152 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMUs 151 and 152. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMUs 151 and 152 are summarized in the tables and subsections below.

18.3.4.1 Future Site Worker - Vapor Intrusion Scenario

A future site worker could be present at SWMUs 151 and 152, and could be exposed to VOCs in total soil via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.18-HHRA-5 and E.18-HHRA-6). The ELCR and HI for site worker exposure to indoor air are presented in Table E.18.HHRA-8.

The total cumulative ELCR for site workers exposed to indoor air at SWMUs 151 and 152 could not be determined because no carcinogens have been selected as COPCs.

The total cumulative HI for site workers is ~~0.00004~~0.00001, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

18.3.4.1 Hypothetical Future Residents - Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMUs 151 and 152 and could be exposed to VOCs in total soil via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Table E.18.HHRA-9.

The total cumulative ELCR for a hypothetical age-adjusted future resident exposed to indoor air at SWMUs 151 and 152 could not be determined because no carcinogens have been selected as COPCs. The total cumulative HI for a hypothetical future child resident is ~~0.002~~0.00007, which is less than the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

18.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

One SVOC (benzidine) was not detected in the surface soil, but had some SQLs greater than the screening values. One SVOC (n-nitrosodi-n-butylamine) was not detected in saturated vadose zone soil water but had SQLs greater than the screening value. Because these constituents were not detected in any sample collected from SWMUs 151 and 152, it is not possible to conduct a quantitative evaluation. All soil samples collected in the early 1990s, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMUs 151 and 152 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

18.3.6 Human Health Risk Summary

18.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated screening hazard indices for non-carcinogenic effects were also summed.~~ The total screening risk for carcinogenic effects could not be determined because no constituents contributing to the ~~total carcinogenic effect ratio~~total risk were detected. The total screening hazard index was below the NMED target hazard index of 1.~~ratios summed. As summarized in Table E.18-HHRA-10, the total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMUs 151 and 152. This demonstrates that the constituent concentrations in combined surface and subsurface soil (0 to 10 ft bgs) at SWMUs 151 and 152 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

No surface soil (0 to 2 ft bgs) data were required to be collected for the Phase I, II or III RFI investigations. Therefore, any exposure to surface soil at SWMUs 151 and 152 by site workers or future residents is not expected to represent an exposure concern.

18.3.6.2 Vapor Intrusion Scenarios

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil screening levels that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway could not be determined because no carcinogens were detected in the total soil. The total HI values for the future vapor intrusion exposure pathway for the future site worker scenario and for the hypothetical future residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

No COPCs were selected for saturated vadose zone soil water at SWMUs 151 and 152, because no volatile constituents were detected in saturated vadose zone soil water.

This demonstrates that the constituent concentrations in saturated vadose zone soil water and total soil at SWMUs 151 and 152 are unlikely to result in adverse health impacts to the following potential receptors via inhalation of indoor air:

- Future site workers; and
- Future residents (adults and children).

18.3.6.3 Overall HHRA Summary

The HHRA for SWMUs 151 and 152 indicates that current and future industrial use of the site would result in potential exposures that are ~~within or~~ below the regulatory benchmarks for cancer risks and noncancer hazards. The evaluation also indicates that potential future residential redevelopment of the site would result in potential exposures that are ~~within or~~ below the regulatory benchmarks for cancer risks and noncancer hazards. Based on these results, additional risk assessment is not warranted for SWMUs 151 and 152.

18.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and combined surface and subsurface soil at SWMUs 151 and 152. The ERA was conducted in a manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000a; 1997c). This ERA is intended to provide input for risk management decision-making for SWMUs 151 and 152, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMUs 151 and 152; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMUs 151 and 152 for the ERA; identifies the potential ecological exposure scenarios relevant to SWMUs 151 and 152; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMUs 151 and 152. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

18.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMUs 151 and 152 are located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMUs 151 and 152 encompass an area ~~less than~~approximately 0.~~5~~ 14 acre and consist of active septic systems. This section describes the habitat at SWMUs 151 and 152. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

SWMUs 151 and 152 are active septic systems for areas/buildings within HELSTF. Each area is surrounded by barbed wire fence; the area encompassing SWMUs 151 and 152 is fenced with gated access. The HELSTF road providing access to the SWMUs is located north of the areas. The site is bounded to the south, east and west by open areas.

Terrestrial Habitat

Dense desert shrub habitat occurs within SWMUs 151 and 152. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMUs 151 and 152 are provided in Attachment B.

Combined, SWMUs 151 and 152 cover an area approximately 0.14 acre. Terrestrial habitat within SWMUs 151 and 152 consists of typical desert basin shrub vegetation found throughout the area (Attachment A). At the time of the ecological reconnaissance in March 2009, the average height of shrubs ranged from 2 to 5 feet. Shrubs identified within SWMUs 151 and 152 consist primarily of 4-winged saltbush (*Atriplex canescens*) and Russian thistle (*Salsola tragus*). Other species identified within the SWMUs include sand dropseed grass *(Sporobolus nealii)* and salt cedar (*Tamarix spp.)* (Attachment 1). Grasses measured approximately 2 feet. The salt cedar did not cover a significant portion of the site.

The vegetation at SWMUs 151 and 152 appears to support a diversity of wildlife. In addition to many types of insects (winged and ground-level), song birds and jackrabbits (*Lepus californicus*) were observed within the area during the ecological reconnaissance.

18.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMUs 151 and 152 are summarized below.

18.4.2.1 Surface Soil

As discussed previously, no surface soil (0 to 2 ft bgs) data was required to be collected at SWMUs 151 and 152 for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMUs 151 and 152 was not identified as a medium of concern.

18.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil (0 to 10 ft bgs) COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.18.ERA-1 presents the selection of combined surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.18.ERA-1, one constituent, acetone, was identified as a COPEC in combined surface and subsurface soil.

18.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPEC identified in the BERA (acetone) was re-evaluated for the combined surface and subsurface soil data set by calculating refined HQs. The refined HQs were calculated for the COPEC using refined EPCs (shown in Table E.18.ERA-2). Since acetone is not bioaccumulative, it was not carried forward into the food chain models. The results of the refined HQ calculations for SWMUs 151 and 152 are summarized in the subsections below.

18.4.3.1 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

One COPEC (acetone) in combined surface and subsurface soil was carried forward into the BERA. When the refined EPC (3.9 mg/kg) was compared with the ESL (2.5 mg/kg), acetone had a refined HQ greater than 1. Because a UCL for acetone was not calculable ~~and therefore~~ the refined EPC equals the maximum detected concentration. The BERA results for the surface and subsurface soil COPEC at SWMUs 151 and 152 are presented in Table E.18.ERA-2 and are discussed below:

Acetone – One sample reported a detected concentration (3.9 mg/kg) above the ESL of 2.5 mg/kg. Based on the data collected from the site, the areal extent of acetone above its ESL is extremely limited and the exceedence was reported at a depth of 10 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact deep subsurface soil, this exposure pathway is considered incomplete for wildlife. Considering that the refined HQ is only slightly above 1 (i.e., 2) and is based on a conservative USEPA Region 5 ESL, and that the area of the entire site is approximately 0.14 acre, adverse impacts are not expected for terrestrial wildlife potentially exposed to acetone in subsurface soil at SWMUs 151 and 152.

Because acetone was not identified as bioaccumulative, it was not evaluated in the terrestrial food chain model.

18.4.4 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Thirty-five constituents, including three VOCs (i.e., chloroform; 2-chlorophenol; and trichloroethylene), eight SVOCs (i.e., butyl benzyl phthalate; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; naphthalene; phenanthrene; and pyrene), five pesticides (i.e., aldrin; dieldrin; endosulfan sulfate; endrin; and 1,1,1-trichloro-2,2-bis[p-methoxphenyl]ethane), seven PCBs (i.e., Aroclor 1221; Aroclor 1232; Aroclor 1242; Aroclor 1254; Aroclor 1260; Aroclor 1016; and Aroclor 1248), one explosive (i.e., 2,6-dinitrotoluene), and three inorganics (i.e., cadmium; lead; and silver), were not detected, but had some SQLs greater than the screening values. Because these 35 constituents were not detected in any sample collected from SWMUs 151 and 152,

it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in 1992 and 1994, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately 15 year period. The high SQLs associated with the SWMUs 151 and 152 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

18.4.5 Ecological Risk Summary

A SLERA and BERA were completed for SWMUs 151 and 152. After the SLERA, one constituent (i.e., acetone) was selected as a COPEC in combined surface and subsurface soil because the HQ was greater than 1. However, the HQ was only slightly above 1 (i.e., 2) and the sample reporting acetone was collected from a depth of 10 ft bgs, limiting potential exposure to only burrowing animals.

Based on these considerations, adverse impacts are not expected for terrestrial wildlife potentially exposed to acetone in surface and subsurface soil at SWMUs 151and 152.

18.5 SWMUs 151 and 152 Summary and Conclusions

A HHRA was conducted to evaluate exposure to COPCs in combined surface and subsurface soil, total soil and saturated vadose zone soil water for site workers under current and future land-use conditions, and construction workers and residents (adult and child) under hypothetical future land-use conditions.

In accordance with NMED guidance (NMED, ~~2006~~2009a), constituent concentrations in combined surface and subsurface soil were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for construction worker exposure, no COPCs were selected for combined surface and subsurface soil at SWMUs 151 and 152. This demonstrates that the constituent concentrations in combined surface and subsurface soil at SWMUs 151 and 152 are unlikely to result in adverse health impacts to future construction workers via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal).

No surface soil data were required to be collected for the Phase I, II or III RFI investigations. Therefore, surface soil at SWMUs 151 and 152 was not identified as a medium of concern.

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway. The total ELCR values for the future vapor intrusion exposure pathway could not be determined because no carcinogens were detected in the total soil. The total HI values for the future vapor intrusion exposure pathway for the site worker scenario and for the residential scenario are below the benchmark of 1 for non-cancer hazard, indicating adverse non-carcinogenic effects are unlikely to occur.

A SLERA and BERA were completed for SWMUs 151 and 152 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface and subsurface soil. The results of the SLERA and BERA for direct contact exposure indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMUs 151 and 152 is warranted.

There are no adverse environmental impacts associated with SWMUs 151 and 152 as a result of historical site activities and no restrictions need to be applied to current or potential future land use at the site. Accordingly, the site is recommended for no further action and should be closed out of the RCRA process.

19. SWMU 154

19.1 Site Description and History

SWMU 154 is the site of a historical systemic diesel fuel spill. A 30,000 gallon underground storage tank (UST) was installed at the staging area on the east side of Test Cell No.2 during 1979 and 1980 and operated from 1980 to 1988, supplying No.2 fuel oil to a gas turbine generator at Test Cell No.2 and to boilers located at the HCF. The UST was removed in April 1988 as part of a facility-wide tank replacement program when above ground storage of fuel became the preferred material handling practice. A release of fuel from the supply line for the HCF boilers was discovered during 1990 during an investigation of the HCF Sump (SWMU-142).

19.2 Risk Assessment Data Set Evaluation

The data used for the HHRA and ERA consist of the same data sets used for the Revised Phase III RFI Report. The data are comprised of soil and saturated vadose zone soil water data collected during multiple RFI phases and routine groundwater monitoring activities. The primary sources of these data include the Phase I RFI (ITC, 1992a,b), the Phase II RFI (SEI, 1993; 1994), and the Phase III RFI (WSMR, 2008). Risk assessment data sets for soil and saturated vadose zone soil water for SWMU 154 were compiled, summarized, and statistically analyzed per methods described in Section 2. Risk assessment data sets summarize the following: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and the upper confidence limit on the mean concentration and are presented in Tables E.19.Data-1 through E.19.Data-4.

19.2.1 Surface Soil (0 to 2 ft bgs)

One soil sample was collected in the 0 to 2 foot depth interval as part of the 1992 investigation. Analytical results for this soil sample are summarized in Table E.19.Data-1. Surface soil was analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and inorganics. No constituents were detected within this data set.

19.2.2 Combined Surface and Subsurface Soil (0 to10 ft bgs)

Forty-nine soil samples were collected in the 0 to 10 foot depth interval as part of the 1990, 1992 1993, and 1994 investigations. Analytical results for these soil samples are summarized in Table E.19.Data-2. The soil was analyzed for VOCs, SVOCs, PAHs,

TPH, explosives, and inorganics. Nine VOCs, TPH, and seventeen inorganics were detected within this data set.

19.2.3 Total Soil (0 to 42 ft bgs)

Two hundred sixty-four soil samples, including four duplicate samples, were collected in the 0 to 42 foot depth interval as part of the 1990, 1992, 1993, 1994, 1997, and 2006 investigations. Analytical results for these soil samples are summarized in Table E.19.Data-3. Total soil was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Thirty-two VOCs, five SVOCs, nine PAHs, TPH, and thirty inorganics were detected within this data set.

19.2.4 Saturated Vadose Zone Soil Water

Thirty-four saturated vadose zone soil water samples, including fourteen duplicate samples, were collected as part of the 2004, 2005, 2006, 2007, and 2008 investigations. Analytical results for these soil water samples are summarized in Table E.19.Data-4. Saturated vadose zone soil water was analyzed for VOCs, SVOCs, PAHs, pesticides, TPH, explosives, and inorganics. Twenty-three VOCs, eight SVOCs, ten PAHs, TPH, eight explosives, and thirty inorganics were detected within this data set.

19.3 Human Health Risk Assessment

The purpose of this risk assessment is to evaluate the potential current and future risks and hazards to human health associated with constituents detected in soil samples collected from SWMU 154. The risk assessment approach was discussed in Section 2.2 of this appendix.

19.3.1 Selection of Constituents of Potential Concern

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the relevant environmental media, in relation to the appropriate screening level. Detected constituents for which a screening level is not available are also considered in the screening process. Non-detected constituents with SQLs exceeding their screening levels are identified during the screening process and discussed in the uncertainty section.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration ~~{~~(represented by the maximum reported concentration as an initial step~~}~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and noncarcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

19.3.1.1 Surface Soil

Surface soil data were evaluated by comparing the analytical data with the appropriate screening level as presented in Section 2.2.1 (Table E.19.HHRA-1).

As summarized in Table E.19.HHRA-1, no constituents were detected in surface soil at SWMU 154, therefore no COPCs were selected. This indicates that surface soil conditions at SWMU 154 are unlikely to result in adverse health impacts to current and future site workers, and to hypothetical future residents. Therefore, potential exposure to surface soil at SWMU 154 is not evaluated further in this HHRA.

19.3.1.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPCs were selected by comparing the analytical data in the 0 to 10 ft bgs data set with the appropriate screening levels as

presented in Section 2.2.1 and applying the ~~ratio~~ screening method discussed above. Table E.19.HHRA-2 presents the results of the screening process.

The maximum concentrations of constituents in the combined surface and subsurface soil (0 to 10 feet bgs) data set at SWMU 154 were compared to the construction worker SSLs. The total ~~ratios~~ screening risk ~~of maximum concentrations to screening levels~~for carcinogenic effects was 6 x 10^{-10}. This total risk ~~for carcinogenic effects~~ is less than the NMED target risk of 1 x 10^{-5}. The total screening hazard index for non-carcinogenic effects was 0.4 for the construction worker scenario. This total hazard index is less than the NMED target hazard index of 1.

.~~for carcinogenic and non-carcinogenic effects were 0.3 and 1, respectively. The total ratios are less than or equal to the NMED target ratio of 1.~~

As summarized in Table E.19.HHRA-2, no COPCs were identified for combined surface and subsurface soil at SWMU 154. This indicates that the constituent concentrations in surface and subsurface soil at SWMU 154 are unlikely to result in adverse health impacts to future construction workers. Therefore, potential exposure to combined surface and subsurface soil at SWMU 154 is not evaluated further in this HHRA.

19.3.1.3 Total Soil

All detected VOCs in total soil (i.e., vadose zone) were selected as COPCs for the vapor intrusion evaluation because there are no NMED or USEPA soil screening levels for the vapor intrusion pathway. Table E.19.HHRA-3 presents the selection of the total soil COPCs for the HHRA. As summarized in Table E.19.HHRA-3, the following 38 constituents were identified as total soil COPCs for the vapor intrusion evaluation:

Thirty-one VOCs (acetone, benzene, bromomethane, 2-butanone, n-butylbenzene, sec-butylbenzene, carbon disulfide, CFC-11, Chlorinated fluorocarbon, chloroethane, chloromethane, cymene, dibenzofuran, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichlroethylene, dichloromethane, ethylbenzene, isopropylbenzene, methylbenzene, n-propylbenzene, tetrachloroethene, 1,1,2,2-tetrachloroethane, 1,1,1-trichloroethane, 1,2,3-trichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride, m,p-xylene, o-xylene, and xylenes) and seven PAHs (acenaphthene, anthracene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and phenanthrene).

19.3.1.4 Saturated Vadose Zone Soil Water

Saturated vadose zone soil water COPCs were selected by comparing the analytical data with vapor intrusion screening levels for groundwater (USEPA, 2002a). Table E.19-HHRA-4 and Table E.19-HHRA-5 present the selection of the saturated vadose zone soil water COPCs for the human health risk assessment. As summarized in Table E.19.HHRA-4, the total screening risk for carcinogenic effects was 2 x 10^{-4} and the total screening hazard index for non-carcinogenic effects was 16, at SWMU 154 using maximum concentrations. Because the total screening risk (using the maximum concentration) for carcinogenic effects is higher than the NMED target risk of 1 x 10^{-5}, and the total hazard index for non-carcinogenic effects was greater than the NMED target index of 1, the total ~~cancer~~screening risk and ~~noncancer~~total screening hazard index using UCLs were determined.~~the total ratios of maximum concentrations to screening levels for carcinogenic effects and non-carcinogenic effects were 13 and 27, respectively. Because the total ratios (using maximum concentrations) exceeded the NMED target ratio of 1, the total ratios using UCLs were determined.~~

As summarized in Table E.19.HHRA-5, the total screening ~~ratios~~ risk for carcinogenic effects and the total screening hazard index for non-carcinogenic effects ~~of UCLs to screening levels~~using UCLs ~~for carcinogenic effects and non-carcinogenic effects~~ were 3 x 10^{-5} ~~2~~ and ~~3~~2, respectively, at SWMU 154. The total ~~ratios~~ risk exceeds the NMED target risk of 1 x 10^{-5}, and the total hazard index is greater than the NMED target index of 1~~NMED target ratio of 1~~. Therefore, all detected volatile constituents were selected as COPCs for saturated vadose zone soil water. The following thirty constituents were identified as soil water COPCs for the vapor intrusion evaluation:

Twenty-three VOCs (benzene, bromomethane, n-butylbenzene, sec-butylbenzene, carbon disulfide, chloroform, chloromethane, cymene, dibenzofuran, 1,1-dichloroethane, 1,2-dichloroethane, ethylbenzene, isopropylbenzene, methylbenzene, MTBE, nitrobenzene, n-propylbenzene, tetrachloroethene, 1,1,1-trichloroethane, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, trichloroethylene, and o-xylene) and seven PAHs (acenaphthene, anthracene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, and phenanthrene).

19.3.2 Summary of Selected Constituents of Potential Concern

No COPCs were selected for surface soil or combined surface and subsurface soil for direct contact.

Thirty-one VOCs and seven PAHs were identified as COPCs for total soil to evaluate inhalation via vapor migration into a hypothetical future building.

Twenty-three VOCs and seven PAHs were identified as COPCs for saturated vadose zone soil water to evaluate inhalation via vapor migration into a hypothetical future building.

19.3.3 Determination of Exposure Point Concentrations

As discussed in the previous section, thirty-eight volatile constituents were selected as COPCs in total soil because no soil screening levels for the vapor intrusion pathway were available. Thirty volatile constituents were selected as COPCs in saturated vadose zone soil water because the total risk for carcinogenic effects ~~were~~was greater than the NMED target risk of 10^{-5}, and the total hazard index for ~~ratios for carcinogenic and~~ non-carcinogenic effects ~~were~~ was greater than the NMED target ~~ratio~~ index of 1. The EPCs for these COPCs are summarized in Table E.19.HHRA-6.

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19.3.4 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks and non-cancer hazards for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate potentially exposed receptors are presented in Table E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

Volatile COPCs for total soil and saturated vadose zone soil water were evaluated for inhalation via vapor migration into hypothetical future buildings. Since no buildings currently exist at SWMU 154 the potential for vapor intrusion is an incomplete exposure pathway under current conditions, and would only be considered a potentially complete pathway in a future scenario that would involve the construction of a building ~~on site~~on-site. Therefore, potential exposures of a future site worker, and hypothetical future adult and child residents were evaluated for SWMU 154. The excess lifetime cancer risks and non-cancer hazards for each potentially exposed receptor included in the risk assessment for SWMU 154 are summarized in the tables and subsections below.

19.3.4.1 Future Site Worker – Vapor Intrusion Scenario

A future site worker could be present at SWMU 154, and could be exposed to VOCs in total soil and in saturated vadose zone soil water via vapor migration to indoor air (vapor concentrations in indoor air are calculated in Tables E.19-HHRA-7 and E.19-HHRA-10). The ELCR and HI for future site worker exposure to indoor air are presented in Tables E.19-HHRA-12 (for total soil) and Table E.19-HHRA-14 (for saturated vadose zone soil water).

The total cumulative ELCR for a future site worker exposed to VOCs in total soil via vapor migration into indoor air at SWMU 154 is ~~9~~ 2 $\times$ 10^{-5}, which is within the acceptable target risk range of 1 $\times$ 10^{-6} to 1 $\times$ 10^{-4}. The total cumulative HI for a future site worker is ~~3~~0.8, which is ~~above~~ below the benchmark of 1, ~~1. However, when the HI for future site worker exposure to indoor air is segregated by COPC-specific target organ site and critical effects (as shown in Table E.19.HHRA-12), none of the target-specific HIs are above the benchmark of 1,~~ indicating adverse non-carcinogenic effects are unlikely to occur. ~~The segregation of the total HI by target organ site and critical effects is consistent with USEPA and NMED guidance (USEPA, 1989; NMED, 2006).~~

As presented in Table E.19-HHRA-14, the total cumulative ELCR for a future site worker exposed to VOCs in saturated vadose zone soil water via vapor migration into indoor air at SWMU 154 is ~~6~~ 9 $\times$ 10^{-8}~~$^{-7}$~~, which is below the acceptable target risk range of 1 $\times$ 10^{-6} to 1 $\times$ 10^{-4}. The total cumulative HI for a future site worker is 0.~~07~~006, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

19.3.4.2 Hypothetical Future Residents – Vapor Intrusion Scenario

A hypothetical future adult or child resident could be present at SWMU 154 and could be exposed to VOCs in total soil and saturated vadose zone soil water via vapor migration into indoor air. The ELCR and HI for hypothetical future adult or child resident exposure to indoor air are presented in Table E.19.HHRA-13 (for total soil) and Table E.19.HHRA-15 (for saturated vadose zone soil water).

The total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to VOCs in total soil via vapor migration into indoor air at SWMU 154 is ~~2~~ 9 $\times$ 10^{-5}~~$^{-4}$~~, which is ~~above~~ within the acceptable target risk range of 1 $\times$ 10^{-6} to 1 $\times$ 10^{-4}. ~~The primary risk driver is vinyl chloride which was detected in 2 of 171 samples.~~ The total cumulative HI for a hypothetical future child resident is ~~10~~4, which exceeds the benchmark of 1. The primary contributors were bromomethane which was detected in

4 of 171 samples and 1,2,4-~~ and 1,3,5-~~trimethylbenzene which ~~were~~ was detected more frequently (i.e., 11 of 58 samples~~ and 8 of 60 samples, respectively~~). When the HI for future hypothetical future child exposure to indoor air is segregated by COPC-specific target organ sites and critical effects (as shown in Table E.19.HHRA-13), the HI for nasal and lung is~~, and HI for unidentified target organ are~~ above the benchmark of 1. The segregation of the total HI by target organ site and critical effects is consistent with USEPA and NMED guidance (USEPA, 1989; NMED, 2006).

As presented in Table E.19.HHRA-15, the total cumulative ELCR for a hypothetical future age-adjusted resident (0 to 30 years) exposed to VOCs in saturated vadose zone soil water via vapor migration into indoor air at SWMU 154 is ~~1~~ 5 $\times$ 10^{-6}~~7~~, which is ~~within~~ below the acceptable target risk range of 1 $\times$ 10^{-6} to 1 $\times$ 10^{-4}. The total cumulative HI for a hypothetical future child resident is 0.03, which is below the benchmark of 1, indicating adverse non-carcinogenic effects are unlikely to occur.

19.3.4.3 Discussion of Risk Characterization

Although unacceptable ~~risks and~~ hazards were calculated for the hypothetical future resident scenario, it is important to reiterate that no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 154 were calculated. The primary contributors to the unacceptable ~~risks and~~ hazards (i.e., ~~vinyl chloride,~~ bromomethane, and 1,2,4-trimethylbenzene) were further examined to determine their significance in terms of hypothetical future exposure.

~~*Vinyl Chloride*~~

~~While vinyl chloride was identified as one of the primary contributors to the calculated risk, a closer examination of the detected and non-detected concentrations and their spatial extent indicates that it is unlikely that vinyl chloride would represent a significant exposure risk to hypothetical future resident receptors.~~

~~Vinyl chloride was detected in only 2 of 171 samples, both detections with concentrations of 0.21 mg/kg. These samples were collected from HCF-NE100 at sample depths of 15-20 feet bgs and 20-25 feet bgs. Of the 34 total samples that were collected from surface and shallow soil (i.e., from 0 to 15 bgs) at SWMU 154, vinyl chloride was not detected in any sample, including the shallowest sample (10-15 ft bgs) from the boring that had detects of vinyl chloride in deeper samples (i.e., HCF-NE100). Vinyl chloride is unlikely to represent a significant exposure risk because of the following reasons:~~

- ~~The evaluated scenario (i.e., hypothetical future residential exposure via vapor intrusion), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development); and~~

- ~~Given the extremely low frequency of detection (i.e., one percent), the lack of detection in surface and shallow samples, and that the two detections were from samples obtained from deep subsurface samples (i.e., greater than 15 ft bgs), it is unlikely that these detections represent a significant impact from vinyl chloride.~~

~~Based on this evaluation, vinyl chloride is not likely to represent a significant exposure risk via vapor intrusion under future land use conditions.~~

Bromomethane

While bromomethane was identified as one of the primary contributors to the calculated risk, a closer examination of the detected and non-detected concentrations and their spatial extent indicates that it is unlikely that bromomethane would represent a significant exposure risk to hypothetical future resident receptors.

Bromomethane was detected in only 4 of 171 samples, with concentrations ranging from 0.02 mg/kg to 0.14 mg/kg. These samples were collected from two locations (HCF-NE100 and N100) at sample depths of 15-20 feet bgs and 20-25 feet bgs, respectively. Of the 39 total samples (including one duplicate sample) that were collected from surface and shallow soil (i.e., 0 to 15 bgs) at SWMU 154, bromomethane was not detected in any sample, including the shallowest sample (10-15 ft bgs) from one of the borings that had the detects of bromomethane in deeper samples (i.e., HCF-NE100). While shallow soils were not sampled for bromomethane at boring location N100, all three samples taken below the 20-25 feet bgs sample were below detection limits (<0.0140 mg/kg). Bromomethane is unlikely to represent a significant exposure risk because of the following reasons:

- The evaluated scenario (i.e., hypothetical future residential exposure via vapor intrusion), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development); and

- Given the extremely low frequency of detection (i.e., two percent), lack of detection in surface and shallow samples, and that the four detections were from samples obtained from deep subsurface samples (i.e., greater than 15 ft bgs), it is unlikely that these detections represent a significant impact from bromomethane.

Based on this evaluation, bromomethane is not likely to represent a significant exposure risk via vapor intrusion under future land use conditions.

1,2,4-Trimethylbenzene

1,2,4-Trimethylbenzene was another of the primary contributors to the calculated hazard for the identified hypothetical future resident receptor and was detected in 11 of 58 samples, with concentrations ranging from 0.068 mg/kg to 32 mg/kg. The maximum concentrations were detected at location depths greater than 30 feet bgs, and concentrations from ground surface to 30 feet bgs were all non-detect or at low concentrations (i.e., less than 1.5 mg/kg). Therefore, using the UCL as an EPC is a highly conservative approach that likely results in an exposure point concentration that is biased high and is likely not representative of the entire exposure area. 1,2,4-trimethylbenzene is unlikely to represent a significant exposure risk because of the following reasons:

- The evaluated scenario (i.e., hypothetical future residential exposure via vapor intrusion), is a highly unlikely scenario because it would involve a significant land use change in the future (i.e., from an operating military installation to a single-family residential development);

- In the extremely unlikely event that the site was re-developed in the future as a residential area, the more appropriate exposure point concentration to use to represent potential exposure would be an average concentration. When the average detected concentration of 1.19 mg/kg is used, the calculated HI for 1,2,4-trimethylbenzene is 1; and

- Given the maximum concentrations were detected at location depths greater than 30 feet bgs, and concentrations from ground surface to 30 feet bgs were all non-detect or at low concentrations (i.e., less than 1.5 mg/kg), it is unlikely that these detections represent a significant impact from 1,2,4-trimethylbenzene.

Based on this evaluation, 1,2,4-trimethylbenzene is not likely to represent a significant exposure risk via vapor intrusion under future land use conditions.

A summary of the calculated human health risks and hazards for each of the evaluated scenarios is provided in Table E.19-HHRA-16.

19.3.5 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

Two SVOCs (benzidine and n-methyl-n-nitrosomethanamine) were not detected in the surface soil, but had SQLs greater than the screening values. One SVOC (benzidine) and one metal (e.e, thallium) were not detected in combined surface and subsurface soil, but had SQLs greater than the screening value. Three VOCs (bis(2-chloroethyl)ether, 1,2-dichlorobenzene, and m-dichlorobenzene) and one SVOC (n-nitrosodi-n-butylamine) were not detected in saturated vadose zone soil water but had SQLs greater than the screening value. Because these constituents were not detected in any sample collected from SWMU 154, it is not possible to conduct a quantitative evaluation. The majority of the soil samples collected in the early 1990s, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~20 year period. The high SQLs associated with the SWMU 154 dataset are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

TPH was detected in the combined surface and subsurface soil at SWMU 154. A TPH soil screening level for construction worker exposure was not available, nor were toxicity values for TPH; therefore a quantitative risk evaluation of TPH could not be conducted. However, the major components of TPH for which toxicity information exists (e.g., BTEX, PAHs) were evaluated in this HHRA, therefore TPH was not evaluated further in the HHRA.

19.3.6 Human Health Risk Summary

19.3.6.1 Soil Exposure Scenarios

In accordance with NMED guidance (NMED, 2009a~~6~~), constituent concentrations in surface soil and in combined surface and subsurface soil were compared to health-based screening levels and the calculated ~~screening risks for carcinogenic effects~~ratios summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated screening hazard indices for non-carcinogenic effects were also summed.~~ The total screening risk for carcinogenic effects was below the NMED target risk of 1 x 10^{-5}, and the total screening hazard index was below the NMED target hazard index of 1.~~ratios summed. The total ratios were less than the NMED target ratio of 1.~~ The results of this data screening process indicate that after comparison to health-based soil screening levels for industrial worker exposure, residential exposure, and construction worker exposure, no COPCs were selected for surface soil or for combined surface and subsurface soil at SWMU 154. This demonstrates that the constituent concentrations in surface soil and in combined surface and subsurface soil at SWMU 154 are unlikely to result in adverse health impacts to the following potential receptors via direct contact exposure (i.e., ingestion, inhalation of vapor/dust, dermal):

- Current and future site workers;
- Future residents (adults and children); and
- Future construction workers.

19.3.6.2 Vapor Intrusion Scenarios

All detected volatile constituents in total soil (i.e., vadose zone) were selected as COPCs for the future vapor intrusion evaluation because there are no NMED or USEPA soil ~~screening levels screening levels~~screening levels that are protective of the vapor intrusion pathway. All detected volatile constituents in saturated vadose zone soil water were compared to the USEPA (2002a) groundwater screening levels for the protection of indoor air. The calculated ~~total, screening risks for carcinogenic effects~~ratios ~~are~~were summed and multiplied by 1 x 10^{-5} for carcinogens or by 1 for non-carcinogens. ~~Similarly, the calculated total screening hazard indices for noncarcinogenic effects were summed.~~ The total screening risk exceeds the NMED target risk of 1 x 10^{-5}. The total screening hazard index was above the NMED target hazard index of 1.~~and the calculated ratios summed. The total ratios were above the NMED target ratio of 1.~~

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The total ELCR value for the future vapor intrusion exposure pathway for the site worker scenario is within the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI value for the future vapor intrusion exposure pathway for the site worker scenario is ~~above~~ below the benchmark of 1 for non-cancer hazard~~. When the HI for a site worker exposure to indoor air is segregated by target site and critical effects, none of the hazards are above the benchmark of 1~~, indicating adverse non-carcinogenic effects are unlikely to occur.

The total ELCR value for the vapor intrusion exposure pathway for a hypothetical future age-adjusted resident (0 to 30 years) is ~~above~~ within the acceptable target risk range of 10^{-6} to 10^{-4} for carcinogenic effects. The total HI value for the vapor intrusion exposure pathway for a hypothetical future child resident scenario is above the benchmark of 1. When the HI for a hypothetical future child resident exposure to indoor air is segregated by target site and critical effects, the HI for nasal and lung ~~and the HI for unidentified target organ are~~is above the benchmark of 1.

19.3.6.3 Overall HHRA Summary

The HHRA for SWMU 154 indicates that current and future industrial use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and non-cancer hazards. The evaluation also indicates that potential future residential redevelopment of the site may result in potential exposures to indoor air that are above the regulatory benchmarks for ~~cancer risks and~~ non-cancer hazards if all exposure assumptions are met.

It is important to reiterate that the scenarios for which unacceptable risks and/or hazards were calculated are all hypothetical future scenarios. There are no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 154. In addition, as discussed above in Section 19.3.4, the unacceptable ~~risks and~~ hazards were calculated for unlikely future scenarios using highly conservative exposure assumptions. Therefore, the potential for COPCs at SWMU 154 to represent a significant concern in the future is considered low, and additional evaluation is considered unneccessary.

19.4 Ecological Risk Assessment

The purpose of the ERA is to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and in combined surface and subsurface soil at SWMU 154. The ERA was conducted in a

manner consistent with NMED and USEPA guidance for ecological risk assessment (NMED, 2008; USEPA 2001a; 2000a; 1997c). This ERA is intended to provide input for risk management decision-making for SWMU 154, while maintaining a conservative approach protective of wildlife populations and communities.

This section describes the environmental setting and habitat for SWMU 154; summarizes the occurrence of constituents in each soil grouping and identifies COPECs at SWMU 154; identifies the potential ecological exposure scenarios relevant to SWMU 154; and presents the estimated ecological risks associated with the identified COPECs and the relevant ecological exposure scenarios at SWMU 154. Methodologies for data summary and selection of COPECs, exposure assessment, and toxicity assessment for the ERA were presented in Section 2.3.

19.4.1 Environmental Setting

As discussed in Section 6 of the Revised Phase III RFI, SWMU 154 is located within the HELSTF of the White Sands Missile Range in Otero County, New Mexico. SWMU 154 encompasses an area less than 0.2 acre and consists of ~~a diesel spill,~~ red crushed rock ground cover~~,~~ and sparse grass. SWMU 154 is a systemic diesel spill within HELSTF. It is bounded by SWMUs 23 and 24 and the cleaning facility to the south, a paved (asphalt) area to the west, HELSTF roads to the east, and HELSTF building 26132 to the north.

This section describes the habitat at SWMU 154. An ecological reconnaissance of the HELSTF sites occurred on March 19, 2009.

<u>Terrestrial Habitat</u>

No significant terrestrial habitat occurs on or surrounding SWMU 154 because approximately 90% of the site is covered with crushed rock and the remainder is sparse grass. Site photographs are presented in Attachment A. Ecological characterization worksheets for SWMU 154 are provided in Attachment B.

It is important to note here that due to its location within an active testing facility and current landcover (i.e., crushed rock), SWMU 154 does not provide any significant habitat for ecological receptors and there are no complete exposure pathways to potentially affected media (i.e., soil) under current conditions. The potential risks described below are only associated with hypothetical future use conditions where no exposure barriers exist (i.e., where the current land cover has been removed).

19.4.2 Selection of Constituents of Potential Ecological Concern

This section discusses the selection of COPECs for soil. Risks to ecological receptors are calculated by dividing the exposure estimates (i.e., the maximum detected concentrations) by the conservative ESLs. The resulting ratio, the HQ, is a highly conservative surrogate for the assessment endpoints identified in Section 2.3. HQs equal to or less than a value of 1 (to nearest whole number) indicate that adverse ecological effects are unlikely if exposure was to occur (USEPA 1997c). HQs greater than 1 indicate that further evaluation is warranted. Therefore, the constituents with HQs greater than 1 are carried forward as COPECs into the BERA. Results of the COPEC selection process for SWMU 154 are summarized below.

19.4.2.1 Surface Soil

Surface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.19.ERA-1 presents the selection of surface soil COPECs for the ecological risk assessment.

As shown in Table E.19.ERA-1, no COPECs were identified for surface soil at SWMU 154.

19.4.2.2 Combined Surface and Subsurface Soil

Combined surface and subsurface soil COPECs were selected by comparing the analytical data with ESLs from sources identified in Section 2.3.2. Table E.19.ERA-2 presents the selection of combined surface and subsurface soil COPECs for the ecological risk assessment.

As summarized in Table E.19.ERA-3, nine constituents (sec-butylbenzene; ethylbenzene; isopropylbenzene; n-propylbenzene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; antimony; lead; and vanadium) were identified as COPECs in combined surface and subsurface soil.

19.4.3 Refinement of Risk Calculations for Direct Contact Constituents of Potential Ecological Concern

The COPECs identified in the SLERA were re-evaluated for the combined surface and subsurface soil data set by calculating refined HQs. The refined HQs were calculated for the COPEC using refined EPCs (shown in Table E.19.ERA-3). Of the nine COPECs, only lead was identified as bioaccumulative. However, as discussed below,

lead was not carried through the BERA and therefore was not evaluated further. The results of the refined HQ calculations for SWMU 154 are summarized in the subsections below.

19.4.3.1 Combined Surface and Subsurface Soil (0 to 10 ft bgs)

Nine COPECs in combined surface and subsurface soil, including six VOCs and three inorganics, were carried forward into the BERA. Three of the COPECs, including sec-butylbenzene; isopropylbenzene; and n-propylbenzene, were detected in only one sample, DRW-02, at a depth of 10 ft bgs. Screening values were not available for these three COPECs; however, due to the low frequency of detection (one in six samples), the low levels of detection (less than 1 mg/kg), and the depth at which these volatiles were detected, adverse impacts are not expected for deep burrowing wildlife potentially exposed to sec-butylbenzene; isopropylbenzene; and n-propylbenzene in subsurface soil at SWMU 154.

When the refined EPC for lead (14.6 mg/kg) was compared with the ESL (11 mg/kg), lead had a refined HQ equal to 1 (rounded to nearest whole number). Therefore, adverse impacts are not expected for terrestrial wildlife potentially exposed to lead in surface and subsurface soil at SWMU 154. The BERA results for the remaining surface and subsurface soil COPECs at SWMU 154 are presented in Table E.19.ERA-3 and are discussed below:

Ethylbenzene – One sample reported a detected concentration (0.38 mg/kg) above the ESL of 0.05 mg/kg. Based on the data collected from the site, the areal extent of ethylbenzene above its ESL is extremely limited. In addition, only one detected concentration was reported in eighteen samples, and therefore the UCL was not ~~un~~calculable and the refined HQ is based on the maximum concentration. Furthermore, when an alternative ESL from USEPA Region 5 (USEPA, 2003d) of 5.16 mg/kg for ethylbenzene was used to calculate a refined HQ, the result is less than 1. Considering that the refined HQ is less than 1 when the USEPA Region 5 ESL is used, and that the area of the entire site is approximately 0.2 acre, adverse impacts are not expected for terrestrial wildlife potentially exposed to ethylbenzene in combined surface and subsurface soil at SWMU 154.

1,2,4-Trimethylbenzene – Only one sample reported a detected concentration (0.74 mg/kg) above the ESL of 0.05 mg/kg. Based on the data collected from the site, the areal extent of 1,2,4-trimethylbenzene above its ESL is extremely limited and the exceedence was reported at a depth of 10 ft bgs. Therefore, with the exception of

burrowing animals that may potentially contact deep subsurface soil, this exposure pathway is considered incomplete for wildlife. In addition, only one detected concentration was reported in six samples, and therefore the UCL was not ~~un~~calculable and the refined HQ is based on the maximum concentration. Considering that the refined HQ is based on a conservative USEPA Region 4 ESL, and that the area of the entire site is approximately 0.2 acre, adverse impacts are not expected for terrestrial wildlife potentially exposed to 1,2,4-trimethylbenzene in subsurface soil at SWMU 154.

1,3,5-Trimethylbenzene – Only one sample reported a detected concentration (0.851 mg/kg) above the ESL of 0.05 mg/kg. Based on the data collected from the site, the areal extent of 1,3,5-trimethylbenzene above its ESL is extremely limited and the exceedence was reported at a depth of 10 ft bgs. Therefore, with the exception of burrowing animals that may potentially contact deep subsurface soil, this exposure pathway is considered incomplete for wildlife. In addition, only one detected concentration was reported in six samples, and therefore the UCL was not ~~un~~calculable and the refined HQ is based on the maximum concentration. Considering that the refined HQ is based on a conservative USEPA Region 4 ESL, and that the area of the entire site is approximately 0.2 acre, adverse impacts are not expected for terrestrial wildlife potentially exposed to 1,3,5-trimethylbenzene in subsurface soil at SWMU 154.

Antimony – Three detected concentrations (ranging from 0.68 mg/kg to 0.98 mg/kg) were detected above the ESL for antimony (0.27 mg/kg). All three samples were collected from outside the SWMU 154 boundary but included in the data set for SWMU 154 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). The areal extent of samples containing antimony above its ESL is very limited (approximately 0.073 acre). The calculated HQ of 4 is based on an EcoSSL for a shrew (mammalian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous mammals range from 4.9 mg/kg to 10 mg/kg. For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 4.9 mg/kg (based on mammalian carnivore) may be more appropriate for the site. Using a screening level of 4.9 mg/kg and the maximum detected concentration, the HQ for antimony is less than 1 indicating that adverse ecological effects are unlikely if exposure was to occur. Based on these considerations, adverse impacts are not expected for wildlife potentially exposed to antimony at SWMU 154.

Vanadium – Only one sample reported a detected concentration (21 mg/kg) above the ESL for vanadium of 7.8 mg/kg. The detected concentration was reported for sample HCF-02 which is a composite of soil from 0 to 5 ft bgs. This sample was collected from outside the SWMU 154 boundary but included in the data set for SWMU 154 based on the nature and extent evaluation discussed in the Revised Phase III RFI Report (Section 6). Based on the data collected from the site, the areal extent of vanadium above its ESL is extremely limited. The calculated HQ of 3 is based on an EcoSSL for a woodcock (avian insectivore) which was calculated assuming a diet of earthworms. EcoSSLs for herbivorous and carnivorous birds range from 13 mg/kg to 140 mg/kg. Mammalian EcoSSLs for vanadium range from 280 mg/kg (based on insectivore diet of earthworms) to 1,300 mg/kg (herbivorous mammal). For all practical purposes, earthworms do not occur in the desert southwest (Werner and Olson, 1994). Therefore, the EcoSSL of 13 mg/kg (based on avian herbivore) may be more appropriate for the site. Using a screening level of 13 mg/kg and the maximum detected concentration, the HQ for vanadium is 2 (rounded to nearest whole number). Considering that the refined HQ is only slightly above 1 (i.e., 2) and is based on the maximum detected concentration, and that the area of the entire site is small (approximately 0.2 acre), adverse impacts are not expected for terrestrial wildlife potentially exposed to vanadium in subsurface soil at SWMU 154.

19.4.4 Uncertainties in the ERA

General uncertainties associated with ERA are presented on Table E.2-23. Site-specific uncertainties are discussed below.

Thirty-two constituents, including seven VOCs (i.e., chloroform; 2-chlorophenol; 1,2-dibromo-3-chloropropane [0-10 depth interval only]; methylbenzene [0-10 depth interval only]; trichloroethylene; vinyl chloride [0-10 depth interval only]; and m,p-xylene [0-10 depth interval only]), nine SVOCs (i.e., benzyl butyl phthalate; bis[2-chloroethoxy]methane [0-10 depth interval only]; bis[2-ethylhexyl]phthalate; 3,3'-dichlorobenzidine; 2,4-dimethylphenol; hexachloro-1,3-butadiene; hexachlorobenzene; n-methyl-n-nitrosomethanamine; and 2-methyl-4,6-dinitrophenol), eight PAHs (i.e., anthracene; benzo[a]pyrene; benzo[b]fluoranthene; 2-chloronaphthalene; fluoranthene; napthalene; phenanthrene; and pyrene), one explosive (i.e., 2,6-dinitrotoluene), and seven inorganics (i.e., cadmium; lead [0-2 depth interval only]; mercury [0-10 depth interval only]; molybdenum [0-10 depth interval only]; selenium; silver; and thallium [0-10 depth interval only]), were not detected, but had some SQLs greater than the screening values. Because these 32 constituents were not detected in any sample collected from SWMU 154, it is not possible to

conduct a quantitative evaluation. The majority of the soil samples collected in 1990, 1992 and 1993, while analyzed using standard laboratory methods and instrumentation appropriate for that time period, have SQLs that are elevated in relation to SQLs that have become increasingly lower over the past approximately ~~15~~ 20 year period. The high SQLs associated with the SWMU 154 data set are believed to be the result of outdated laboratory methods and instrumentation rather than a function of constituent content within a sample. Therefore, the SQLs associated with historical data are considered a minor uncertainty in the risk assessment.

19.4.5 Ecological Risk Summary

A SLERA and BERA were completed for SWMU 154. After the SLERA, nine constituents were selected as COPECs in combined surface and subsurface soil because the HQs were greater than 1. However, when these COPECs were considered in combination with their frequency of detection, areal extent of exceedances, and the basis for their ESLs, adverse impacts are not expected for terrestrial wildlife potentially exposed to sec-butylbenzene; ethylbenzene; isopropylbenzene; n-propylbenzene; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; antimony; lead; and vanadium in surface and subsurface soil at SWMU 154.

19.5 SWMU 154 Summary and Conclusions

The HHRA for SWMU 154 indicates that current and future industrial use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and non-cancer hazards. The evaluation also indicates that potential future residential redevelopment of the site may result in potential exposures to indoor air that are above the regulatory benchmarks for ~~cancer risks and~~ non-cancer hazards. However, after further examination of the primary contributors to the unacceptable risks and hazards at SWMU 154, the potential for the site to represent a significant concern via the direct contact pathway or vapor intrusion pathway in the future is considered low, and additional evaluation is considered unneccessary.

A SLERA and BERA were completed for SWMU 154 to evaluate whether ecological receptors may be adversely impacted by exposure to site-related constituents detected in surface soil and subsurface soil. The results of the SLERA and BERA for direct contact exposure indicate there is adequate information to conclude that adverse impacts are unlikely to occur for ecological receptors potentially exposed to constituents in soil. Therefore, no further ecological evaluation at SWMU 154 is warranted.

There are no current environmental impacts associated with SWMU 154 as a result of historical site activities. However, potential future residential development of the site may result in potential indoor air exposures that are above the regulatory benchmarks for ~~cancer risks and~~ non-cancer hazards. It is important to reiterate that the scenarios for which unacceptable risks and/or hazards were calculated are all hypothetical future scenarios. There are no unacceptable risks and/or hazards to current receptors (i.e., site workers) at SWMU 154.

20. HELSTF Regional Groundwater

Regional groundwater at the HELSTF is considered to be facility-wide, rather than being specific to any of the individual SWMUs. Therefore, the groundwater investigation activities performed at the HELSTF are discussed on a facility-wide basis. This section presents the human health risk assessment for the regional groundwater.

It is important to note that as discussed in Section 6 of Revised Phase III RFI, the regional groundwater within the Tularosa Basin, which includes the HELSTF area, has naturally elevated levels of some common inorganic parameters, such as Total Dissolved Solids (TDS) and sulfate, which likely render the groundwater unusable. The risk assessment presented herein was conducted to meet the overall requirements of the RCRA RFI/CMS process for the HELSTF. Therefore, although naturally occurring conditions likely render the regional groundwater unusable, it is evaluated in this risk assessment as a potential potable water supply.

20.1 Risk Assessment Data Set Evaluation

Data generated from the site characterization activities were used in the risk assessment. The groundwater data from the regional groundwater collected during multiple RFI phases and routine groundwater activities were used in the risk assessment. The groundwater risk assessment dataset was compiled then summarized and statistically analyzed per methods described in Section 2.2. The groundwater risk assessment dataset summary highlighting: the number of detects, number of samples, FOD, minimum and maximum detected concentrations, minimum and maximum detection limits, and upper confidence limit on the mean (where calculated) is presented in Table E.20.Data-1.

The groundwater dataset included data collected from the regional groundwater monitoring wells from the period 2004 through 2008, which is consistent with the data set used to represent current conditions for the groundwater conceptual site model (Section 6 of the Revised Phase III RFI). The groundwater data from unfiltered samples were used, as a conservative measure, in the risk assessment.

The analytical results for the regional groundwater data are summarized in Table E.20.Data-1. Samples were analyzed for VOCs, SVOCs, PAHs, herbicides, pesticides, TPH, explosives, and inorganics. Eleven VOCs, two SVOCs, one pesticide, four explosives, and 31 inorganics were detected in at least one groundwater sample.

20.1.1 Selection of Constituents of Potential Concern (COPCs)

The regional groundwater COPCs were selected by comparing the analytical data with screening levels developed assuming ingestion of water under a future residential exposure scenario as described in Section 2, and summarized below.

Constituents present at concentrations greater than their screening level were identified as COPCs. The hierarchy for screening the regional groundwater dataset is presented below:

1. Use the lowest value of the USEPA Maximum Contaminant Level (MCL) (USEPA, 2003a) or the NMED Water Quality Control Commission (WQCC) groundwater quality standards (NMED WQCC, 1995).

2. If an analyte does not have a USEPA MCL or an NMED standard, the NMED tap water screening level (NMED, ~~2006~~2009b) was used.

3. If an analyte does not have an NMED tap water screening level, the USEPA regional tap water screening level (for carcinogens, the USEPA tap water screening level was adjusted upward by a factor of 10) (USEPA, 200~~8~~9a) was used.

The selection of COPCs is based primarily on the magnitude of the measured concentrations in the groundwater dataset, in relation to the appropriate screening level. Detected constituents for which a screening level is not available were also included for evaluation. Since multiple constituents have been detected in the regional groundwater, the following procedure was followed in accordance with NMED (~~2006~~2009a) guidance.

For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2009a): separate the constituents by carcinogens and non-carcinogens, take the site-specific constituent concentration (~~[~~represented by the maximum reported concentration as an initial step~~]~~), and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent and multiply by $1x10^{-5}$ for carcinogens or multiply by 1 for non-carcinogens. If the total screening risk is greater than the target risk level of 1×10^{-5} for carcinogens and/or greater than the target hazard index of 1 for non-carcinogens, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. Screening risk and hazard indices

less than the target levels indicate that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2009a).~~For screening data at sites with multiple constituents, the following procedure was followed in accordance with NMED guidance (NMED, 2006): separate the constituents by carcinogens and noncarcinogens, take the site-specific constituent concentration (represented by the maximum reported concentration, or the 95% UCL concentration) and divide by the screening level concentration for each constituent. For multiple constituents, simply add the ratio for each constituent. If the total ratio is greater than 1 when the maximum constituent concentrations were used, then the 95% UCL constituent concentrations are used in the comparison. If the total ratio is greater than 1, then the concentrations at the site warrant further, site-specific evaluation in a risk assessment. A ratio less than 1 indicates that the concentrations at the site are unlikely to result in adverse health impacts (NMED, 2006).~~

20.1.1.1 Ingestion of Groundwater

The maximum detected concentration was compared with the screening level as seen in Table E.20-HHRA-1. The total risk and total hazard index for carcinogenic and non-carcinogenic effects were above the NMED target risk of 1 x 10^{-5} and the NMED target hazard index of 1.~~The total ratio is greater than 1 for both potentially carcinogenic compounds and noncarcinogens.~~ Therefore, a secondary evaluation was performed using the 95% UCL concentration as seen in Table E.20-HHRA-2. The total risk and total hazard index using UCLs ~~The total ratios~~ were still greater than ~~1~~ the NMED targets and therefore, it was concluded that the regional groundwater concentrations warrant further, site-specific evaluation (NMED, ~~2006~~2009a).

Within the VOCs suite, 11 COPCs were identified, namely acetone; carbon disulfide; chloroform; chloromethane; 1,1-dichloroethane; 1,1-dichloroethene; isopropyl alcohol; MTBE; tetrachloroethene; trichloroethene; and m,p-xylenes.

Two SVOCs, m-dinitrobenzene and 1,4-dioxane were detected in groundwater and selected as COPCs.

Four explosives were detected in groundwater, and were selected as COPCs, namely 4-nitrotoluene; RDX; tetryl; and 2,4,6-trinitrotoluene.

Twenty-six inorganic constituents were detected in the groundwater samples. Four of these constituents (calcium; magnesium; potassium; and sodium) are essential nutrients and are not identified as groundwater COPCs. The remainder of the detected

inorganic constituents were identified as COPCs on the basis of the results of the screening.

20.1.1.2 Inhalation of Vapors Migrating from Groundwater

VOCs were present in the regional groundwater. The maximum detected concentration for each volatile constituent was compared to the USEPA groundwater screening level for the vapor intrusion exposure pathway (USEPA, 2002). As seen in Table E.20-HHRA-3, the total ~~ratio~~ screening risk for potentially carcinogenic compounds was greater than the target risk of 1 x 10^{-5}, while the total ~~ratio~~ screening hazard index for non-carcinogens was less than the target hazard index of 1. Therefore, a secondary evaluation was performed using the 95% UCL concentration as seen in Table E.20-HHRA-4. The total screening risk~~ratio~~ for potentially carcinogenic compounds was still greater than 1 x 10^{-5}. The only constituent with a screening risk~~ratio~~ greater than 1x 10^{-5} was trichloroethene, although all VOCs were selected as COPCs for the vapor intrusion pathway in accordance with NMED (~~2006~~2009a) guidance.

20.1.1.3 Summary of Selected Constituents of Potential Concern

All of the detected constituents in regional groundwater were selected as COPCs for the hypothetical future direct contact exposure pathway (i.e., use of groundwater for drinking water).

Ten VOCs were detected in regional groundwater and were selected as COPCs for the vapor intrusion exposure pathway (acetone; carbon disulfide; chloroform; chloromethane; 1,1-dichloroethane; 1,1-dichloroethene; MTBE; tetrachloroethene; trichloroethene; and m,p-xylenes).

20.1.2 Determination of Exposure Point Concentrations

The forty-four constituents that were detected in the regional groundwater data set, excluding the essential nutrients, were identified as COPCs because they all contributed to the total screening risk and total screening hazard index~~ratios~~ of:

~~24~~ 2 x 10^{-4} (carcinogenic) and ~~129~~ 147 (non-carcinogenic) for direct contact exposure; and

~~9~~ 9 x 10^{-5} (carcinogenic) and 0.02 (non-carcinogenic) for vapor intrusion exposure.

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The distribution testing and UCL calculations for the COPCs were performed as described in Section 2.2.6.1, and the EPCs for these COPCs are summarized in Table E.20.HHRA-5. For assessment of the vapor intrusion pathway, the exposure point concentration in indoor air due to groundwater has been calculated for the VOC COPCs using the Johnson and Ettinger Model, and the results are shown in Table E.20-HHRA-10.

20.1.3 Human Health Risk Characterization

The physical and chemical properties and toxicity values used to evaluate excess lifetime cancer risks (ELCRs) and non-cancer hazard indices (HIs) for the COPCs are presented in Tables E.2-5 through E.2-10 and E.2-20. The exposure assumptions used to evaluate hypothetical future receptors are presented in Tables E.2-11 through E.2-19. The equations used in the risk characterization calculations are presented in Tables E.2-11 through E.2-19.

There are currently no points of exposure to groundwater at the WSMR installation, including the HELSTF sites, because all potable water for the installation is provided via a secure water supply system located approximately 7 miles from the WSMR. Therefore, under current conditions, exposure to groundwater at a water well is not a complete exposure pathway. Rather, the following discussion is associated with hypothetical future use of the groundwater.

The hypothetical future groundwater exposure pathways evaluated in the HHRA include use of groundwater as a potable water supply and inhalation of vapors migrating from groundwater into a building. Individuals using the groundwater could be exposed through ingestion, dermal contact and inhalation of vapors. The inhalation pathway is complete under two scenarios. Vapors can occur in ambient indoor air from water used as a potable water supply (e.g., during residential showering). Vapors can also be present in indoor air through subsurface vapor intrusion into buildings. Potential future exposures of site workers and residents are evaluated for the regional groundwater. The ELCRs and non-cancer HIs for each potentially exposed receptor included in the risk assessment for the regional groundwater are discussed in the subsections below.

20.1.3.1 Future Site Worker

Risks to commercial/industrial receptors (site workers) exposed to groundwater as a potable source at the HELSTF is not expected to occur and the current land use

associated with the HELSTF is not expected to change. As a result, future use of the HELSTF groundwater as a potable source for industrial purposes is considered unlikely, but was considered as a conservative measure. The ELCR and non-cancer HI for site worker exposure to groundwater used as a potable water supply are presented in Table E.20.HHRA-8, and in Table E.20.HHRA-11, for the inhalation of vapors migrating to indoor air.

The total cumulative ELCR for future site workers using the regional groundwater as a potable water supply is ~~3~~ 3 × 10^{-4}, as seen in Table E.20-HHRA-8, which is greater than the acceptable target risk range of 1 × 10^{-6} to 1 × 10^{-4}. The total cumulative HI for site workers is ~~2~~20, which is greater than the benchmark of 1.

The total cumulative ELCR for future site workers exposed to vapors migrating from regional groundwater into indoor air is ~~3~~ 8 × 10^{-8}~~7~~, which is less than the acceptable target risk range of 1 × 10^{-6} to 1 × 10^{-4}. The total cumulative HI for site workers is 0.0002~~6~~, which is less than the benchmark of 1, indicating adverse non-cancer effects are unlikely to occur.

20.1.3.2 Hypothetical Future Residents

The total cumulative ELCR for a hypothetical age-adjusted future resident exposed to groundwater used as a potable water supply, as seen in Table E.20.HHRA-9, is 2 × 10^{-3}, which is greater than the acceptable target risk range of 1 × 10^{-6} to 1 × 10^{-4}. The total cumulative HI for a hypothetical future child resident, as seen in Table E.20.HHRA-10, is ~~118~~119, which is well above the benchmark of 1.

The total cumulative ELCR for a hypothetical age-adjusted future resident exposed to indoor air migrating from regional groundwater is ~~6~~ 5 × 10^{-7}, which is less than the acceptable target risk range of 1 × 10^{-6} to 1 × 10^{-4}, as seen in Table E.20.HHRA-12. The total cumulative HI for a hypothetical future child resident is 0.~~0002~~001, which is less than the benchmark of 1, indicating adverse non-cancer effects are unlikely to occur.

The total cumulative ELCR for hypothetical future child and adult residents exposed to groundwater, presented in Table E.20.HHRA-14, is 2 × 10^{-3}, which is above the acceptable target risk range of 1 × 10^{-6} to 1 × 10^{-4}. The total cumulative HI for hypothetical future child residents is ~~100~~ 119~~(rounded)~~, which is well above the benchmark of 1.

20.2 Uncertainties in the HHRA

General uncertainties associated with human health risk assessment are discussed in Section 2.2.5. Site-specific uncertainties are discussed below.

It is highly unlikely that regional groundwater in the HELSTF area would be used as a potable water supply. The groundwater contains high levels of TDS. The high levels of TDS indicate that it would likely be undrinkable.

Toxicity values were not available for sulfate. Therefore, exposure to sulfate could not be quantitatively evaluated. It is unlikely, however, that if toxicity values were available for sulfate, it would contribute significantly to the overall risk.

Exposure to lead was not quantitatively evaluated for groundwater exposures. Lead was detected once at a concentration of 0.013 mg/L. This is less than the Federal Action Level and therefore, lead is not expected to contribute significantly to the overall risks.

20.3 HELSTF Groundwater HHRA Summary and Conclusions

In accordance with NMED guidance (NMED, ~~2006~~2009a) for the screening of site data, constituent concentrations in regional groundwater were compared to health-based screening levels and the calculated ratios summed. The ratios were multiplied by $1x10^{-5}$ for carcinogens and by 1 for non-carcinogens. ~~.~~ The total ~~ratios~~ screening risk and total screening hazard index exceeded the NMED target screening risk and target hazard index ~~ratio of 1~~ for both the potable use and inhalation of vapors migrating to indoor air exposure scenarios. Therefore, a quantitative HHRA was performed.

The HHRA was conducted to evaluate potential exposure to constituents detected in regional groundwater. Potential exposure of site workers was evaluated for the vapor intrusion pathway. The calculated ELCRs were well below the acceptable target risk range of 1×10^{-6} to 1×10^{-4} for cancer risks and below the benchmark of 1 for non-cancer hazard. Exposure of hypothetical future adult and child residents through the vapor intrusion exposure pathway yielded similar, very low results.

Exposure of hypothetical future residents and site workers to constituents in regional groundwater assuming the groundwater was used as a potable or domestic water supply also was evaluated in the HHRA.

The ELCRs calculated for a child and adult resident exposure to groundwater used as a potable water supply was 2×10^{-3}. This is above the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The risk drivers for cancer risk are arsenic and camphechlor. The non-cancer HI was calculated to be ~~118~~119, above the benchmark of 1, with cobalt and lithium as the risk drivers for non-cancer hazard.

The ELCRs calculated for a site worker exposure to groundwater used as a potable water supply was ~~3~~ 3 $\times 10^{-4}$. This is just above the high end of the acceptable target risk range of 1×10^{-6} to 1×10^{-4}. The non-cancer HI was calculated to be ~~20~~20, which was above the benchmark of 1. As for the hypothetical future residential exposure scenario, the risk drivers for cancer risk are camphechlor and arsenic. The risk drivers for the non-cancer hazards were cobalt and lithium.

It is important to note that, as discussed previously, the regional groundwater within the Tularosa Basin, which includes the HELSTF area, has naturally elevated levels of some common inorganic parameters, such as Total Dissolved Solids (TDS) and sulfate, which likely render the groundwater unusable. The risk assessment presented herein was conducted to meet the overall requirements of the RCRA RFI/CMS process for the HELSTF.

21. Summary and Conclusions

21.1 Soil and Saturated Vadose Zone Soil Water

Risk assessments were conducted for 17 areas of concern to evaluate current and hypothetical future risks to human health and the environment associated with potential exposure to constituents detected in environmental media at the HELSTF within the White Sands Missile Range. The following ~~eight~~ seven SWMUs were eliminated from further human health evaluation during the screening process since the total screening ~~ratios~~ risks and hazard indices calculated for each medium were less than the NMED target ~~ratio~~ screening risk of $1x10^{-5}$ for carcinogens and less than the NMED target screening hazard index of 1 for non-carcinogens:

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- ~~SWMUs 27-30,~~
- SWMUs 31-32,
- SWMUs 33-34,
- SWMUs 38-39,
- SWMU 145,
- SWMU 146,
- SWMU 149, and
- SWMU 150.

COPCs were identified for the remaining ~~nine~~ ten SWMUs and a HHRA was conducted for each area. HHRAs for ~~six~~ eight of the SWMUs (SWMU 25, SWMU 27, SWMU 141, SWMU 143, SWMU 144, SWMU 147, SWMU 148, SWMUs 151-152) concluded that current and future industrial use and hypothetical future residential use of the site would result in potential exposures that are within or below the regulatory benchmarks for cancer risks and noncancer hazards, and therefore were not evaluated further. HHRAs for the remaining ~~three~~ two areas (i.e., SWMU 142 ~~, SWMU 147,~~ and SWMU 154) calculated potential risks and hazards for hypothetical future exposures to soil or indoor air that are above the regulatory benchmarks for cancer risks and noncancer hazards. However, after further examination of the occurrence and spatial distribution of the primary contributors to the unacceptable risks and hazards, the potential for conditions at SWMU 142, ~~SWMU 147~~ and SWMU 154 to represent a significant concern via the direct contact pathway or vapor intrusion pathway to hypothetical future receptors is considered low, and additional evaluation is considered unneccessary.

The results of the SLERA and BERA (if necessary) for each SWMU concluded that adverse impacts are unlikely to occur for ecological receptors potentially exposed, under both current or hypothetical future land use conditions, to constituents in soil. Therefore, no further ecological evaluation is warranted for the SWMUs at the HELSTF.

21.2 Regional Groundwater

The results of the data screening process indicated that exposure to regional groundwater could pose a risk to human health. Therefore, a quantitative evaluation of exposure and risk was conducted. The findings of the use of regional groundwater as a potable water supply indicated that there is a significant hypothetical future risk for either site workers or residents. However, it is important to recognize that the regional groundwater is not currently used as a potable water supply, nor is there any expectation that it will be used in the future, and therefore these risks and hazards are purely hypothetical.

The findings of the vapor intrusion evaluation indicated that potential future industrial or residential development of the HELSTF would result in potential indoor air exposures that are below the regulatory benchmarks for cancer risks and non-cancer hazards.

It is important to note that the regional groundwater within the Tularosa Basin, which includes the HELSTF area, has naturally elevated levels of some common inorganic parameters, such as Total Dissolved Solids (TDS) and sulfate, which likely renders the groundwater unusable. The risk assessment presented herein was conducted to meet the overall requirements of the RCRA RFI/CMS process for the HELSTF.

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Table E.2-1
Background Screening Comparison Results
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

	Does Metal Level Pass Background Screen?																										
Constituent	**SWMU 19-20**	**SWMU 23-24**	**SWMU 25**	**SWMU 26**	**SWMU 27-30**	**SWMU 31-32**	**SWMU 33-34**	**SWMU 35-36**	**SWMU 37**	**SWMU 38-39**	**SWMU 63**	**SWMU 64**	**SWMU 141**	**SWMU 142**	**SWMU 143**	**SWMU 144**	**SWMU 145**	**SWMU 146**	**SWMU 147**	**SWMU 148**	**SWMU 149**	**SWMU 150**	**SWMU 151-152**	**SWMU 154**	**SWMU 197**	**SWMU AOC-V**	**SWMU AOC-Q**	**AOC-N**
Inorganics																											
Aluminum	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	YES	no	no	no	no
Antimony	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Arsenic	no	YES	YES	YES	no	no	no	no	YES	no	no	no	no	no	no	YES	YES	YES	YES	no	YES	YES	YES	YES	no	no	no	no
Barium	no	no	no	YES	no	YES	no	YES	no	YES	no	no	YES	YES	YES	YES	no	YES	no	YES	YES	YES	no	YES	no	no	no	no
Beryllium	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Boron	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Cadmium	no	no	no	no	no	no	no	no	no	no	no	no	no	YES	no	no	no	YES	no	no	no	no	no	no	no	no	no	no
Calcium metal	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Chromium	no	no	no	YES	no	YES	no	YES	no	no	no	no	no	YES	no	no	no	YES	no	no	no	YES	no	YES	no	no	no	no
Chromium (Hexavalent)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Cobalt	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Copper	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Fluoride	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Iron	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	YES	no	no	no	no
Lead	no	no	no	YES	no	YES	no	no	no	no	no	no	no	YES	no	no	YES	YES	no	no	no	no	no	no	no	no	no	no
Magnesium	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Manganese	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Mercury	no	no	no	no	no	no	no	no	no	YES	no	no	YES	no	YES	no	no	no	no	YES	no	no	no	no	no	no	no	no
Molybdenum	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Nickel	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Phosphorus	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Potassium	no	no	no	no	no	YES	no	YES	no	no	no	no	no	no	no	no	no	YES	no	no	no	no	no	YES	no	no	no	no
Selenium	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Silver	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Sodium	no	no	no	no	no	YES	no	no	no	no	no	no	no	no	no	no	no	YES	no	no	no	no	no	YES	no	no	no	no
Sulfide	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Thallium	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Tin	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Titanium Metal Powder	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Uranium	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Vanadium	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Zinc	no	no	no	no	no	no	no	YES	no	no	no	no	no	no	no	no	no	YES	no	no	no	no	no	YES	no	no	no	no

Notes: Background levels for inorganics are determined within the Background Evaluation (Appendix F).

Table E.2-2
Screening Levels for the Protection of Human Health - Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	NMED Soil Regional Screening Level [a]						Adjusted Soil Regional Screening Level (Soil RSL) [b]				Site Soil Regional Screening Level [c]					
	Residential Soil		Industrial/ Occupational Soil		Construction Worker Soil		Residential		Industrial		Residential		Industrial		Construction	
	mg/kg		mg/kg		mg/kg		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Volatile Organic Compounds																
Acetone	6.75E+04	n	8.51E+05	nls	2.63E+05	nls	6.10E+04	n	6.30E+05	nms	6.75E+04	n	8.51E+05	nls	2.63E+05	nls
Acetophenone	7.82E+03	ns	1.14E+05	nls	3.10E+04	ns	7.80E+03	ns	1.00E+05	nms	7.82E+03	ns	1.14E+05	nls	3.10E+04	ns
Acrylonitrile	5.97E+00	c	3.14E+01	c	2.90E+02	n	2.40E+00	c	1.20E+01	c	5.97E+00	c	3.14E+01	c	2.90E+02	n
Benzene	1.55E+01	c	8.54E+01	c	4.71E+02	n	1.10E+01	c	5.40E+01	c	1.55E+01	c	8.54E+01	c	4.71E+02	n
Bis(2-chloro-1-methylethyl)ether	NA		NA		NA		4.60E+01	c	2.20E+02	c	4.60E+01	c	2.20E+02	c	2.70E+03	c_calc
Bromobenzene	NA		NA		NA		3.00E+02	n	1.80E+03	ns	3.00E+02	n	1.80E+03	ns	1.40E+03	n_calc
Bromodichloromethane	5.25E+00	c	2.92E+01	c	3.50E+03	cs	2.70E+00	c	1.40E+01	c	5.25E+00	c	2.92E+01	c	3.50E+03	cs
Bromomethane	2.23E+01	n	8.36E+01	n	6.71E+01	n	7.30E+00	n	3.20E+01	n	2.23E+01	n	8.36E+01	n	6.71E+01	n
2-Butanone (MEK)	3.96E+04	n	3.69E+05	nl	1.48E+05	nls	2.80E+04	n	2.00E+05	nms	3.96E+04	n	3.69E+05	nl	1.48E+05	nls
n-Butylbenzene	NA		NA		NA		NA		NA		4.45E+03	n_calc	3.38E+04	n_calc	1.80E+04	n_calc
sec-Butylbenzene	NA		NA		NA		NA		NA		2.55E+03	n_calc	1.53E+04	n_calc	1.05E+04	n_calc
tert-Butylbenzene	NA		NA		NA		NA		NA		2.52E+03	n_calc	1.50E+04	n_calc	1.04E+04	n_calc
Carbon disulfide	1.94E+03	ns	7.54E+03	ns	5.89E+03	ns	8.20E+02	ns	3.70E+03	ns	1.94E+03	ns	7.54E+03	ns	5.89E+03	ns
Carbon tetrachloride	4.38E+00	c	2.43E+01	c	1.99E+02	n	2.50E+00	c	1.20E+01	c	4.38E+00	c	2.43E+01	c	1.99E+02	n
Chlorinated fluorocarbon (Freon 113)	1.04E+05	nls	3.39E+05	nls	2.98E+05	nls	4.30E+04	ns	1.80E+05	nms	1.04E+05	nls	3.39E+05	nls	2.98E+05	nls
Chlorobenzene	5.08E+02	ns	2.14E+03	n	1.58E+03	ns	2.90E+02	n	1.40E+03	ns	5.08E+02	ns	2.14E+03	n	1.58E+03	ns
Chlorodibromomethane	1.19E+01	c	6.13E+01	c	1.99E+03	c	6.80E+00	c	3.30E+01	c	1.19E+01	c	6.13E+01	c	1.99E+03	c
Chloroethane	4.36E+04	ns	1.37E+05	nls	1.23E+05	nls	1.50E+04	ns	6.10E+04	ns	4.36E+04	ns	1.37E+05	nls	1.23E+05	nls
Chloroform	5.72E+00	c	3.19E+01	c	6.71E+02	c	2.90E+00	c	1.50E+01	c	5.72E+00	c	3.19E+01	c	6.71E+02	c
Chloromethane	3.56E+01	c	1.98E+02	c	1.13E+03	n	1.20E+02	n	5.00E+02	n	3.56E+01	c	1.98E+02	c	1.13E+03	n
2-Chlorophenol	3.91E+02	n	5.68E+03	n	1.55E+03	n	3.90E+02	n	5.10E+03	n	3.91E+02	n	5.68E+03	n	1.55E+03	n
2-Chlorotoluene	1.56E+03	ns	2.27E+04	ns	6.19E+03	ns	1.60E+03	ns	2.00E+04	ns	1.56E+03	ns	2.27E+04	ns	6.19E+03	ns
4-Chlorotoluene	NA		NA		NA		5.50E+03	ns	7.20E+04	ns	5.50E+03	ns	7.20E+04	ns	2.17E+04	n_calc
Cymene	NA		NA		NA		NA		NA		NA		NA		NA	
Dibenzofuran	NA		NA		NA		7.80E+01	n	1.00E+03	ns	7.80E+01	n	1.00E+03	ns	9.53E+02	n_calc
1,2-Dibromoethane	5.74E-01	c	3.14E+00	c	4.86E+01	c	3.40E-01	c	1.70E+00	c	5.74E-01	c	3.14E+00	c	4.86E+01	c
Dibromomethane	7.82E+02	n	1.14E+04	ns	3.10E+03	ns	2.50E+01	n	1.10E+02	n	7.82E+02	n	1.14E+04	ns	3.10E+03	ns
1,4-Dichlorobenzene	3.22E+01	c	1.80E+02	c	3.78E+03	cs	2.40E+01	c	1.20E+02	c	3.22E+01	c	1.80E+02	c	3.78E+03	cs
1,1-Dichloroethane	6.29E+01	c	3.50E+02	c	6.88E+03	cs	3.30E+01	c	1.70E+02	c	6.29E+01	c	3.50E+02	c	6.88E+03	cs
1,2-Dichloroethane	7.74E+00	c	4.28E+01	c	7.51E+02	c	4.30E+00	c	2.20E+01	c	7.74E+00	c	4.28E+01	c	7.51E+02	c
1,1-Dichloroethylene	6.18E+02	n	2.22E+03	ns	1.83E+03	ns	2.40E+02	n	1.10E+03	n	6.18E+02	n	2.22E+03	ns	1.83E+03	ns
cis-1,2-Dichloroethene	7.82E+02	n	1.14E+04	ns	3.10E+03	cs	7.80E+02	n	1.00E+04	ns	7.82E+02	n	1.14E+04	ns	3.10E+03	cs
trans-1,2-Dichloroethene	2.73E+02	n	9.95E+02	n	8.14E+02	n	1.50E+02	n	6.90E+02	n	2.73E+02	n	9.95E+02	n	8.14E+02	n
Dichloromethane (methylene chloride)	1.99E+02	c	1.09E+03	c	1.06E+04	ns	1.10E+02	c	5.30E+02	c	1.99E+02	c	1.09E+03	c	1.06E+04	ns
1,2-Dichloropropane	1.47E+01	c	8.17E+01	c	1.17E+02	n	8.90E+00	c	4.50E+01	c	1.47E+01	c	8.17E+01	c	1.17E+02	n
1,3-Dichloropropane	NA		NA		NA		1.60E+03	ns	2.00E+04	ns	1.60E+03	ns	2.00E+04	ns	6.19E+03	n_calc
2,2-Dichloropropane	NA		NA		NA		NA		NA		8.35E+00	n_calc	3.90E+01	n_calc	3.51E+01	n_calc
1,1-Dichloropropene	NA		NA		NA		NA		NA		6.40E+01	c_calc	3.18E+02	c_calc	2.17E+03	c_calc
cis-1,3-Dichloropropene	2.35E+01	c	1.26E+02	c	5.10E+02	n	1.70E+01	c	8.10E+01	c	2.35E+01	c	1.26E+02	c	5.10E+02	n
trans-1,3-Dichloropropene	2.35E+01	c	1.26E+02	c	5.10E+02	n	1.70E+01	c	8.10E+01	c	2.35E+01	c	1.26E+02	c	5.10E+02	n
Ethanol	NA		NA		NA		NA		NA		NA		NA		NA	
Ethylbenzene	6.97E+01	c	3.85E+02	c	6.63E+03	cs	5.40E+01	c	2.70E+02	c	6.97E+01	c	3.85E+02	c	6.63E+03	cs

Table E.2-2
Screening Levels for the Protection of Human Health - Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	NMED Soil Regional Screening Level [a]						Adjusted Soil Regional Screening Level (Soil RSL) [b]				Site Soil Regional Screening Level [c]					
	Residential Soil		Industrial/ Occupational Soil		Construction Worker Soil		Residential		Industrial		Residential		Industrial		Construction	
	mg/kg		mg/kg		mg/kg		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Iodomethane	NA		NA		NA		NA		NA		1.30E+01	n_calc	6.58E+01	n_calc	5.41E+01	n_calc
Isopropylbenzene	3.21E+03	ns	1.49E+04	ns	1.03E+04	ns	2.10E+03	ns	1.10E+04	ns	3.21E+03	ns	1.49E+04	ns	1.03E+04	ns
m-Dichlorobenzene	NA		NA		NA		NA		NA		2.35E+03	n_calc	3.41E+04	n_calc	9.29E+03	n_calc
Methyl tert-butyl ether (MTBE)	8.62E+02	c	4.69E+03	c	6.55E+04	cs	4.30E+02	c	2.20E+03	c	8.62E+02	c	4.69E+03	c	6.55E+04	cs
Nitrobenzene	4.94E+01	c	2.77E+02	c	5.20E+02	n	4.80E+01	c	2.40E+02	c	4.94E+01	c	2.77E+02	c	5.20E+02	n
n-Propylbenzene	NA		NA		NA		3.40E+03	ns	2.10E+04	ns	3.40E+03	ns	2.10E+04	ns	1.64E+04	n_calc
Styrene	8.97E+03	ns	5.12E+04	ns	3.03E+04	ns	6.30E+03	ns	3.60E+04	ns	8.97E+03	ns	5.12E+04	ns	3.03E+04	ns
Tetrachloroethene	6.99E+00	c	3.64E+01	c	3.38E+02	cs	5.50E+00	c	2.60E+01	c	6.99E+00	c	3.64E+01	c	3.38E+02	cs
1,1,1,2-Tetrachloroethane	2.92E+01	c	1.61E+02	c	2.78E+03	cs	1.90E+01	c	9.30E+01	c	2.92E+01	c	1.61E+02	c	2.78E+03	cs
1,1,2,2-Tetrachloroethane	7.98E+00	c	4.33E+01	c	5.99E+02	c	5.60E+00	c	2.80E+01	c	7.98E+00	c	4.33E+01	c	5.99E+02	c
1,1,1-Trichloroethane	2.18E+04	ns	7.71E+04	ns	6.43E+04	ns	8.70E+03	ns	3.80E+04	ns	2.18E+04	ns	7.71E+04	ns	6.43E+04	ns
1,1,2-Trichloroethane	1.72E+01	c	9.43E+01	c	1.24E+03	ns	1.10E+01	c	5.30E+01	c	1.72E+01	c	9.43E+01	c	1.24E+03	ns
1,2,3-Trichlorobenzene	NA		NA		NA		4.90E+01	n	4.90E+02	ns	4.90E+01	n	4.90E+02	ns	2.48E+02	n_calc
1,2,3-Trichloropropane	9.15E-01	c	4.54E+00	c	3.10E+01	c	5.00E-02	c	9.50E-01	c	9.15E-01	c	4.54E+00	c	3.10E+01	c
1,2,4-Trichlorobenzene	1.43E+02	ns	5.25E+02	ns	4.27E+02	ns	2.20E+02	c	9.90E+02	c	1.43E+02	ns	5.25E+02	ns	4.27E+02	ns
1,2,4-Trimethylbenzene	NA		NA		NA		6.20E+01	n	2.60E+02	ns	6.20E+01	n	2.60E+02	ns	4.65E+02	n_calc
1,3,5-Trimethylbenzene	NA		NA		NA		7.80E+02	ns	1.00E+04	ns	7.80E+02	ns	1.00E+04	ns	3.10E+03	n_calc
Trichloroethylene	4.57E+01	c	2.53E+02	c	4.60E+03	cs	2.80E+01	c	1.40E+02	c	4.57E+01	c	2.53E+02	c	4.60E+03	cs
Vinyl chloride	8.65E-01	c	2.59E+01	c	2.48E+02	c	6.00E-01	c	1.70E+01	c	8.65E-01	c	2.59E+01	c	2.48E+02	c
m-Xylene	8.29E+03	ns	2.72E+04	ns	2.38E+04	ns	3.40E+03	ns	1.70E+04	ns	8.29E+03	ns	2.72E+04	ns	2.38E+04	ns
o-Xylene	9.55E+03	ns	3.15E+04	ns	2.75E+04	ns	3.80E+03	ns	1.90E+04	ns	9.55E+03	ns	3.15E+04	ns	2.75E+04	ns
Xylenes	1.09E+03	ns	3.61E+03	ns	3.13E+03	ns	6.30E+02	ns	2.70E+03	ns	1.09E+03	ns	3.61E+03	ns	3.13E+03	ns
Semi Volatile Organic Compounds																
4-Aminobiphenyl	NA		NA		NA		2.30E-01	c	8.20E-01	c	2.30E-01	c	8.20E-01	c	7.88E+00	c_calc
Aniline	NA		NA		NA		8.50E+02	c	3.00E+03	c	8.50E+02	c	3.00E+03	c	1.41E+03	n_calc
Benzidine	2.11E-02	c	8.33E-02	c	7.20E-01	c	5.00E-03	c	7.50E-02	c	2.11E-02	c	8.33E-02	c	7.20E-01	c
Benzoic acid	NA		NA		NA		2.40E+05	nm	2.50E+06	nm	2.40E+05	nm	2.50E+06	nm	9.53E+05	n_calc
Benzyl alcohol	NA		NA		NA		6.10E+03	n	6.20E+04	n	6.10E+03	n	6.20E+04	n	2.38E+04	n_calc
Benzyl butyl phthalate	NA		NA		NA		2.60E+03	c	9.10E+03	c	2.60E+03	c	9.10E+03	c	4.76E+04	n_calc
Bis(2-ethylhexyl) phthalate	3.47E+02	c	1.37E+03	c	4.76E+03	n	3.50E+02	c	1.20E+03	c	3.47E+02	c	1.37E+03	c	4.76E+03	n
Carbazole	NA		NA		NA		NA		NA		2.43E+02	c_calc	9.58E+02	c_calc	8.34E+03	c_calc
p-Chloroaniline	NA		NA		NA		2.40E+01	c	8.60E+01	c	2.40E+01	c	8.60E+01	c	8.34E+02	c_calc
4-Chloro-3-methylphenol	NA		NA		NA		6.10E+03	n	6.20E+04	n	6.10E+03	n	6.20E+04	n	2.38E+04	n_calc
Dichlorvos (DDVP)	NA		NA		NA		1.70E+01	c	5.90E+01	c	1.70E+01	c	5.90E+01	c	1.16E+02	n_calc
3,3'-Dichlorobenzidine	NA		NA		NA		1.10E+01	c	3.80E+01	c	1.10E+01	c	3.80E+01	c	3.64E+02	c_calc
2,4-Dichlorophenol	1.83E+02	n	2.05E+03	n	7.15E+02	n	1.80E+02	n	1.80E+03	n	1.83E+02	n	2.05E+03	n	7.15E+02	n
2,6-Dichlorophenol	NA		NA		NA		NA		NA		1.83E+02	n_calc	2.05E+03	n_calc	7.15E+02	n_calc
Diethyl phthalate	4.89E+04	n	5.47E+05	nl	1.91E+05	nl	4.90E+04	n	4.90E+05	nm	4.89E+04	n	5.47E+05	nl	1.91E+05	nl
2,4-Dimethylphenol	1.22E+03	n	1.37E+04	n	4.76E+03	n	1.20E+03	n	1.20E+04	n	1.22E+03	n	1.37E+04	n	4.76E+03	n
2,4-Dinitrophenol	1.22E+02	n	1.37E+03	n	4.76E+02	n	1.20E+02	n	1.20E+03	n	1.22E+02	n	1.37E+03	n	4.76E+02	n
2,4-Dinitrotoluene	1.57E+01	c	1.03E+02	c	4.76E+02	n	1.60E+01	c	5.50E+01	c	1.57E+01	c	1.03E+02	c	4.76E+02	n
a,a-Dimethylphenethylamine	NA		NA		NA		NA		NA		NA		NA		NA	
Dimethyl phthalate	6.11E+05	nl	6.84E+06	nl	2.38E+06	nl	NA		NA		6.11E+05	nl	6.84E+06	nl	2.38E+06	nl

Table E.2-2
Screening Levels for the Protection of Human Health - Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	NMED Soil Regional Screening Level [a]						Adjusted Soil Regional Screening Level (Soil RSL) [b]				Site Soil Regional Screening Level [c]					
	Residential Soil		Industrial/ Occupational Soil		Construction Worker Soil		Residential		Industrial		Residential		Industrial		Construction	
	mg/kg		mg/kg		mg/kg		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Di-n-butyl phthalate	6.11E+03	n	6.84E+04	n	2.38E+04	n	6.10E+03	n	6.20E+04	n	6.11E+03	n	6.84E+04	n	2.38E+04	n
m-Dinitrobenzene	NA		NA		NA		6.10E+00	n	6.20E+01	n	6.10E+00	n	6.20E+01	n	2.38E+01	n_calc
Di-n-octyl phthalate	NA		NA		NA		NA		NA		2.44E+03	n_calc	2.74E+04	n_calc	9.53E+03	n_calc
Diphenylamine	NA		NA		NA		1.50E+03	n	1.50E+04	n	1.50E+03	n	1.50E+04	n	5.96E+03	n_calc
Diphenylhydrazine	NA		NA		NA		NA		NA		6.08E+00	c_calc	2.39E+01	c_calc	2.07E+02	c_calc
Ethyl methanesulfonate	NA		NA		NA		NA		NA		NA		NA		NA	
Hexachlorobenzene	3.04E+00	c	1.20E+01	c	1.03E+02	c	3.00E+00	c	1.10E+01	c	3.04E+00	c	1.20E+01	c	1.03E+02	c
Hexachlorocyclopentadiene	3.67E+02	n	4.10E+03	n	8.11E+02	n	3.70E+02	n	3.70E+03	n	3.67E+02	n	4.10E+03	n	8.11E+02	n
Hexachloroethane	6.11E+01	n	6.84E+02	n	2.38E+02	n	3.50E+02	c	1.20E+03	c	6.11E+01	n	6.84E+02	n	2.38E+02	n
2-Methyl-4,6-dinitrophenol	NA		NA		NA		6.10E+00	n	6.20E+01	n	6.10E+00	n	6.20E+01	n	2.38E+01	n_calc
Methyl methanesulfonate	NA		NA		NA		4.90E+01	c	1.70E+02	c	4.90E+01	c	1.70E+02	c	1.67E+03	c_calc
2-Methylphenol	NA		NA		NA		3.10E+03	n	3.10E+04	n	3.10E+03	n	3.10E+04	n	1.19E+04	n_calc
1-Naphthylamine	NA		NA		NA		NA		NA		NA		NA		NA	
2-Naphthylamine	NA		NA		NA		2.70E+00	c	9.60E+00	c	2.70E+00	c	9.60E+00	c	9.26E+01	c_calc
2-Nitroaniline	NA		NA		NA		6.10E+02	n	6.00E+03	n	6.10E+02	n	6.00E+03	n	3.88E+02	n_calc
3-Nitroaniline	NA		NA		NA		NA		NA		6.10E+02	n_calc	6.81E+03	n_calc	3.88E+02	n_calc
2-Nitrophenol	NA		NA		NA		NA		NA		NA		NA		NA	
4-Nitrophenol	NA		NA		NA		NA		NA		NA		NA		NA	
n-Nitrosodi-n-propylamine	NA		NA		NA		6.90E-01	c	2.50E+00	c	6.90E-01	c	2.50E+00	c	2.38E+01	c_calc
n-Nitrosodiphenylamine	9.93E+02	c	3.91E+03	c	3.40E+04	c	9.90E+02	c	3.50E+03	c	9.93E+02	c	3.91E+03	c	3.40E+04	c
n-Nitrosodiphenylamine & diphenylamine	NA		NA		NA		NA		NA		NA		NA		NA	
n-Nitrosopiperidine	NA		NA		NA		5.20E-01	c	1.80E+00	c	5.20E-01	c	1.80E+00	c	1.76E+01	c_calc
Pentachlorobenzene	4.89E+01	n	5.47E+02	n	1.91E+02	n	4.90E+01	n	4.90E+02	n	4.89E+01	n	5.47E+02	n	1.91E+02	n
Pentachlorophenol	2.98E+01	c	1.00E+02	c	1.03E+03	c	3.00E+01	c	9.00E+01	c	2.98E+01	c	1.00E+02	c	1.03E+03	c
Phenacetin	NA		NA		NA		2.20E+03	c	7.80E+03	c	2.20E+03	c	7.80E+03	c	7.52E+04	c_calc
Phenol	1.83E+04	n	2.05E+05	nl	6.88E+04	n	1.80E+04	n	1.80E+05	nm	1.83E+04	n	2.05E+05	nl	6.88E+04	n
Pyridine	NA		NA		NA		7.80E+01	n	1.00E+03	n	7.80E+01	n	1.00E+03	n	3.10E+02	n_calc
1,2,4,5-Tetrachlorobenzene	1.83E+01	n	2.05E+02	n	7.15E+01	n	1.80E+01	n	1.80E+02	n	1.83E+01	n	2.05E+02	n	7.15E+01	n
2,4,5-Trichlorophenol	6.11E+03	n	6.84E+04	n	2.38E+04	n	6.10E+03	n	6.20E+04	n	6.11E+03	n	6.84E+04	n	2.38E+04	n
2,4,6-Trichlorophenol	6.11E+01	n	6.84E+02	n	2.38E+02	n	4.40E+02	c	1.60E+03	c	6.11E+01	n	6.84E+02	n	2.38E+02	n
Isophorone	5.12E+03	c	2.02E+04	c	4.75E+04	n	5.10E+03	c	1.80E+04	c	5.12E+03	c	2.02E+04	c	4.75E+04	n
1,3,5-Trinitrobenzene	NA		NA		NA		2.20E+03	n	2.70E+04	n	2.20E+03	n	2.70E+04	n	8.79E+03	n_calc
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	3.44E+03	ns	3.67E+04	ns	1.86E+04	n	3.40E+03	n	3.30E+04	n	3.44E+03	ns	3.67E+04	ns	1.86E+04	n
Acenaphthylene	NA		NA		NA		NA		NA		3.44E+03	n_calc	3.67E+04	n_calc	1.34E+04	n_calc
Anthracene	1.72E+04	ns	1.83E+05	nl	6.68E+04	ns	1.70E+04	n	1.70E+05	nm	1.72E+04	ns	1.83E+05	nl	6.68E+04	ns
Benzo(a)anthracene	6.21E+00	c	2.34E+01	c	2.13E+02	c	1.50E+00	c	2.10E+01	c	6.21E+00	c	2.34E+01	c	2.13E+02	c
Benzo(a)pyrene	6.21E-01	c	2.34E+00	c	2.13E+01	c	1.50E-01	c	2.10E+00	c	6.21E-01	c	2.34E+00	c	2.13E+01	c
Benzo(b)fluoranthene	6.21E+00	c	2.34E+01	c	2.13E+02	c	1.50E+00	c	2.10E+01	c	6.21E+00	c	2.34E+01	c	2.13E+02	c
Benzo(g,h,i)perylene	NA		NA		NA		NA		NA		1.72E+03	n_calc	1.83E+04	n_calc	6.68E+03	n_calc
Benzo(k)fluoranthene	6.21E+01	c	2.34E+02	c	2.06E+03	c	1.50E+01	c	2.10E+02	c	6.21E+01	c	2.34E+02	c	2.06E+03	c
1-Chloronaphthalene	6.26E+03	ns	9.08E+04	ns	2.48E+04	ns	6.30E+03	ns	8.20E+04	ns	6.26E+03	ns	9.08E+04	ns	2.48E+04	ns
2-Chloronaphthalene	6.26E+03	ns	9.08E+04	ns	2.48E+04	ns	6.30E+03	ns	8.20E+04	ns	6.26E+03	ns	9.08E+04	ns	2.48E+04	ns

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Constituent	NMED Soil Regional Screening Level [a]						Adjusted Soil Regional Screening Level (Soil RSL) [b]				Site Soil Regional Screening Level [c]					
	Residential Soil		Industrial/ Occupational Soil		Construction Worker Soil		Residential		Industrial		Residential		Industrial		Construction	
	mg/kg		mg/kg		mg/kg		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Dibenz(a,h)anthracene	6.21E-01	c	2.34E+00	c	2.13E+01	c	1.50E-01	c	2.10E+00	c	6.21E-01	c	2.34E+00	c	2.13E+01	c
7,12-Dimethylbenz(a)anthracene	NA		NA		NA		1.80E-02	c	6.20E-02	c	1.80E-02	c	6.20E-02	c	6.20E-01	c_calc
Fluoranthene	2.29E+03	n	2.44E+04	n	8.91E+03	n	2.30E+03	n	2.20E+04	n	2.29E+03	n	2.44E+04	n	8.91E+03	n
Fluorene	2.29E+03	ns	2.44E+04	ns	8.91E+03	ns	2.30E+03	n	2.20E+04	n	2.29E+03	ns	2.44E+04	ns	8.91E+03	ns
Indeno(1,2,3-c,d)pyrene	6.21E+00	c	2.34E+01	c	2.13E+02	c	1.50E+00	c	2.10E+01	c	6.21E+00	c	2.34E+01	c	2.13E+02	c
1-Methylnaphthalene	NA		NA		NA		2.20E+02	c	9.90E+02	c	2.20E+02	c	9.90E+02	c	5.38E+03	c_calc
2-Methylnaphthalene	NA		NA		NA		3.10E+02	n	4.10E+03	ns	3.10E+02	n	4.10E+03	ns	8.91E+02	n_calc
Naphthalene	4.50E+01	c	2.52E+02	cs	7.02E+02	ns	3.60E+01	c	1.80E+02	c	4.50E+01	c	2.52E+02	cs	7.02E+02	ns
Phenanthrene	1.83E+03	ns	2.05E+04	ns	7.15E+03	ns	NA		NA		1.83E+03	ns	2.05E+04	ns	7.15E+03	ns
Pyrene	1.72E+03	ns	1.83E+04	ns	6.68E+03	ns	1.70E+03	n	1.70E+04	n	1.72E+03	ns	1.83E+04	ns	6.68E+03	ns
Herbicides																
2,4-D	NA		NA		NA		6.90E+02	n	7.70E+03	n	6.90E+02	n	7.70E+03	n	2.69E+03	n_calc
2,4-DB	NA		NA		NA		4.90E+02	n	4.90E+03	n	4.90E+02	n	4.90E+03	n	1.91E+03	n_calc
2,4,5-T	NA		NA		NA		6.10E+02	n	6.20E+03	n	6.10E+02	n	6.20E+03	n	2.38E+03	n_calc
2,4,5-TP (Silvex)	NA		NA		NA		4.90E+02	n	4.90E+03	n	4.90E+02	n	4.90E+03	n	1.91E+03	n_calc
Pesticides																
Aldrin	2.84E-01	c	1.12E+00	c	7.15E+00	n	2.90E-01	c	1.00E+00	c	2.84E-01	c	1.12E+00	c	7.15E+00	n
Basudin, neocidol	NA		NA		NA		4.30E+01	n	4.30E+02	n	4.30E+01	n	4.30E+02	n	1.67E+02	n_calc
beta-BHC	2.70E+00	c	1.06E+01	c	9.19E+01	c	2.70E+00	c	9.60E+00	c	2.70E+00	c	1.06E+01	c	9.19E+01	c
Chlordane	1.62E+01	c	7.19E+01	c	1.35E+02	n	NA		NA		1.62E+01	c	7.19E+01	c	1.35E+02	n
4,4-DDD	2.03E+01	c	7.98E+01	c	6.95E+02	c	2.00E+01	c	7.20E+01	c	2.03E+01	c	7.98E+01	c	6.95E+02	c
4,4-DDE	1.43E+01	c	5.63E+01	c	4.90E+02	c	1.40E+01	c	5.10E+01	c	1.43E+01	c	5.63E+01	c	4.90E+02	c
4,4-DDT	1.72E+01	c	7.81E+01	c	1.42E+02	n	1.70E+01	c	7.00E+01	c	1.72E+01	c	7.81E+01	c	1.42E+02	n
delta-BHC	NA		NA		NA		NA		NA		2.11E+01	n_calc	2.70E+02	n_calc	8.30E+01	n_calc
Dieldrin	3.04E-01	c	1.20E+00	c	1.03E+01	c	3.00E-01	c	1.10E+00	c	3.04E-01	c	1.20E+00	c	1.03E+01	c
Endosulfan II	NA		NA		NA		NA		NA		3.67E+02	n_calc	4.10E+03	n_calc	1.43E+03	n_calc
Endrin	1.83E+01	n	2.05E+02	n	7.15E+01	n	1.80E+01	n	1.80E+02	n	1.83E+01	n	2.05E+02	n	7.15E+01	n
Endrin aldehyde	NA		NA		NA		NA		NA		1.83E+01	n_calc	2.05E+02	n_calc	7.15E+01	n_calc
gamma-BHC	5.17E+00	c	2.29E+01	c	8.30E+01	n	5.20E+00	c	2.10E+01	c	5.17E+00	c	2.29E+01	c	8.30E+01	n
Heptachlor	1.08E+00	c	4.26E+00	c	3.68E+01	c	1.10E+00	c	3.80E+00	c	1.08E+00	c	4.26E+00	c	3.68E+01	c
Heptachlor epoxide	NA		NA		NA		5.30E-01	c	1.90E+00	c	5.30E-01	c	1.90E+00	c	3.10E+00	n_calc
Pentachloronitrobenzene	NA		NA		NA		1.90E+01	c	6.60E+01	c	1.90E+01	c	6.60E+01	c	6.41E+02	c_calc
Total Petroleum Hydrocarbons (TPH)																
>C10-C28	NA		NA		NA		NA		NA		NA		NA		NA	
>C28-C35	NA		NA		NA		NA		NA		NA		NA		NA	
Diesel (c12-c24)	NA		NA		NA		NA		NA		NA		NA		NA	
DRO	5.20E+02		1.12E+03		NA		NA		NA		5.20E+02		1.12E+03		NA	
GRO	NA		NA		NA		NA		NA		NA		NA		NA	
JP-4	NA		NA		NA		NA		NA		NA		NA		NA	
JP-8	NA		NA		NA		NA		NA		NA		NA		NA	
Motor oil (c24-c40)	NA		NA		NA		NA		NA		NA		NA		NA	
Petroleum hydrocarbons	4.40E+02		8.90E+02		NA		NA		NA		4.40E+02		8.90E+02		NA	

Table E.2-2
Screening Levels for the Protection of Human Health - Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	NMED Soil Regional Screening Level [a]						Adjusted Soil Regional Screening Level (Soil RSL) [b]				Site Soil Regional Screening Level [c]					
	Residential Soil		Industrial/ Occupational Soil		Construction Worker Soil		Residential		Industrial		Residential		Industrial		Construction	
	mg/kg		mg/kg		mg/kg		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Polychlorinated Biphenyls																
Aroclor 1254	1.12E+00	n	8.26E+00	c	4.36E+00	n	2.20E+00	c	7.40E+00	c	1.12E+00	n	8.26E+00	c	4.36E+00	n
Aroclor 1260	2.22E+00	c	8.26E+00	c	7.58E+01	c	2.20E+00	c	7.40E+00	c	2.22E+00	c	8.26E+00	c	7.58E+01	c
Explosives																
2-Amino-4,6-dinitrotoluene	NA		NA		NA		1.50E+02	n	2.00E+03	n	1.50E+02	n	2.00E+03	n	6.08E+02	n_calc
4-Amino-2,6-dinitrotoluene	NA		NA		NA		1.50E+02	n	1.90E+03	n	1.50E+02	n	1.90E+03	n	6.03E+02	n_calc
2,6-Dinitrotoluene	6.12E+01	n	6.87E+02	n	2.39E+02	n	6.10E+01	n	6.20E+02	n	6.12E+01	n	6.87E+02	n	2.39E+02	n
2-Nitrotoluene	2.91E+01	c	1.45E+02	c	2.79E+02	n	2.90E+01	c	1.30E+02	c	2.91E+01	c	1.45E+02	c	2.79E+02	n
3-Nitrotoluene	1.56E+03	n	2.27E+04	ns	6.19E+03	ns	6.10E+00	n	6.20E+01	n	1.56E+03	n	2.27E+04	ns	6.19E+03	ns
4-Nitrotoluene	2.44E+02	n	1.20E+03	cs	9.53E+02	ns	3.00E+02	c	1.10E+03	c	2.44E+02	n	1.20E+03	cs	9.53E+02	ns
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazc	3.06E+03	n	3.42E+04	n	1.19E+04	n	3.80E+03	n	4.90E+04	n	3.06E+03	n	3.42E+04	n	1.19E+04	n
RDX	4.42E+01	c	1.74E+02	c	7.15E+02	n	5.50E+01	c	2.40E+02	c	4.42E+01	c	1.74E+02	c	7.15E+02	n
Tetryl	2.44E+02	n	2.74E+03	n	9.53E+02	n	2.40E+02	n	2.50E+03	n	2.44E+02	n	2.74E+03	n	9.53E+02	n
2,4,6-Trinitrotoluene	3.59E+01	n	4.69E+02	n	1.41E+02	n	1.90E+02	c	7.90E+02	c	3.59E+01	n	4.69E+02	n	1.41E+02	n
Inorganics																
Aluminum	7.81E+04	n	1.13E+06	nl	4.07E+04	n	7.70E+04	n	9.90E+05	nm	7.81E+04	n	1.13E+06	nl	4.07E+04	n
Antimony	3.13E+01	n	4.54E+02	n	1.24E+02	n	3.10E+01	n	4.10E+02	n	3.13E+01	n	4.54E+02	n	1.24E+02	n
Arsenic	3.90E+00	c	1.77E+01	c	6.54E+01	n	3.90E+00	c	1.60E+01	c	3.90E+00	c	1.77E+01	c	6.54E+01	n
Barium	1.56E+04	n	2.24E+05	nl	4.35E+03	n	1.50E+04	n	1.90E+05	nm	1.56E+04	n	2.24E+05	nl	4.35E+03	n
Beryllium	1.56E+02	n	2.26E+03	n	1.44E+02	n	1.60E+02	n	2.00E+03	n	1.56E+02	n	2.26E+03	n	1.44E+02	n
Boron	1.56E+04	n	2.27E+05	nl	4.65E+04	n	1.60E+04	n	2.00E+05	nm	1.56E+04	n	2.27E+05	nl	4.65E+04	n
Cadmium	7.79E+01	n	1.12E+03	n	3.09E+02	n	7.00E+01	n	8.00E+02	n	7.79E+01	n	1.12E+03	n	3.09E+02	n
Calcium metal	NA		NA		NA		NA		NA		NA		NA		NA	
Chromium	2.19E+02	n	2.92E+03	n	4.49E+02	n	1.29E+01	c	6.60E+01	c	2.19E+02	n	2.92E+03	n	4.49E+02	n
Cobalt	NA		NA		NA		2.30E+01	n	3.00E+02	n	2.30E+01	n	3.00E+02	n	3.48E+01	n_calc
Copper	3.13E+03	n	4.54E+04	n	1.24E+04	n	3.10E+03	n	4.10E+04	n	3.13E+03	n	4.54E+04	n	1.24E+04	n
Cyanide	1.56E+03	n	2.27E+04	n	6.19E+03	n	1.60E+03	n	2.00E+04	n	1.56E+03	n	2.27E+04	n	6.19E+03	n
Cyanide (Total)	NA		NA		NA		NA		NA		1.22E+03	n_calc	1.37E+04	n_calc	4.76E+03	n_calc
Fluoride	4.69E+03	n	6.81E+04	n	1.86E+04	n	NA		NA		4.69E+03	n	6.81E+04	n	1.86E+04	n
Iron	5.48E+04	n	7.95E+05	nl	2.17E+05	nl	5.50E+04	n	7.20E+05	nm	5.48E+04	n	7.95E+05	nl	2.17E+05	nl
Lead	4.00E+02	IEUBK	8.00E+02	IEUBK	8.00E+02	IEUBK	4.00E+02	n	8.00E+02	n	4.00E+02	IEUBK	8.00E+02	IEUBK	8.00E+02	IEUBK
Magnesium	NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	1.07E+04	n	1.45E+05	nl	4.63E+02	n	0.00E+00		0.00E+00		1.07E+04	n	1.45E+05	nl	4.63E+02	n
Mercury	7.71E+00	ns	4.99E+01	n	6.36E+01	ns	5.60E+00	ns	3.40E+01	ns	7.71E+00	ns	4.99E+01	n	6.36E+01	ns
Molybdenum	3.91E+02	n	5.68E+03	n	1.55E+03	n	3.90E+02	n	5.10E+03	n	3.91E+02	n	5.68E+03	n	1.55E+03	n
Nickel	1.56E+03	n	2.27E+04	n	6.19E+03	n	1.50E+03	n	2.00E+04	n	1.56E+03	n	2.27E+04	n	6.19E+03	n
Nitrate	1.25E+05	nl	1.82E+06	nl	4.96E+05	nl	1.30E+05	nm	1.60E+06	nm	1.25E+05	nl	1.82E+06	nl	4.96E+05	nl
Nitrate + Nitrite	NA		NA		NA		NA		NA		NA		NA		NA	
Phosphorus	NA		NA		NA		1.60E+00	n	2.00E+01	n	1.60E+00	n	2.00E+01	n	6.19E+00	n_calc
Potassium	NA		NA		NA		NA		NA		NA		NA		NA	
Selenium	3.91E+02	n	5.68E+03	n	1.55E+03	n	3.90E+02	n	5.10E+03	n	3.91E+02	n	5.68E+03	n	1.55E+03	n
Silver	3.91E+02	n	5.68E+03	n	1.55E+03	n	3.90E+02	n	5.10E+03	n	3.91E+02	n	5.68E+03	n	1.55E+03	n
Sodium	NA		NA		NA		NA		NA		NA		NA		NA	

Table E.2-2
Screening Levels for the Protection of Human Health - Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	NMED Soil Regional Screening Level [a]						Adjusted Soil Regional Screening Level (Soil RSL) [b]				Site Soil Regional Screening Level [c]					
	Residential Soil		Industrial/ Occupational Soil		Construction Worker Soil		Residential		Industrial		Residential		Industrial		Construction	
	mg/kg		mg/kg		mg/kg		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Sulfide	NA		NA		NA		NA		NA		NA		NA		NA	
Thallium	5.16E+00	n	7.49E+01	n	2.04E+01	n	NA		NA		5.16E+00	n	7.49E+01	n	2.04E+01	n
Tin	NA		NA		NA		4.70E+04	n	6.10E+05	nm	4.70E+04	n	6.10E+05	nm	1.86E+05	n_calc
Titanium	NA		NA		NA		NA		NA		3.12E+05	n_calc	4.52E+06	n_calc	2.27E+05	n_calc
Vanadium	3.91E+02	n	5.68E+03	n	1.55E+03	n	3.90E+02	n	5.20E+03	n	3.91E+02	n	5.68E+03	n	1.55E+03	n
Zinc	2.35E+04	n	3.41E+05	nl	9.29E+04	n	2.30E+04	n	3.10E+05	nm	2.35E+04	n	3.41E+05	nl	9.29E+04	n
Other																
Chloride	NA		NA		NA		NA		NA		NA		NA		NA	

Notes:

mg/kg =	Milligrams per kilogram.
c =	carcinogen.
n =	noncarcinogenic.
cs =	carcinogenc, NMED soil screening level (SSL) may exceed saturation.
ns =	noncarcinongen, NMED soil screening level (SSL) may exceed saturation.
nl =	noncarcinogen, NMED soil screening level (SSL) may exceed ceiling limit.
nls =	noncarcinogen, NMED soil screening level (SSL) may exceed both saturation and ceiling limit.
c_calc =	Calculated based on cancer effects.
IEUBK =	Integrated Exposure Uptake Biokinetic.
n-calc =	Calculated based on noncancer effects.
NA =	Not available.
[a]	Values are from New Mexico Environment Department (NMED), "Soil Screening Levels" (December 2009a,b).
[b]	The adjusted screening levels were regional screening levels for the residential and industrial scenarios from USEPA (2009). Screening levels based on cancer effects were adjusted by a factor of 10 to reflect a target risk of 1 x10 $^{-5.}$
	c = cancer; n = noncancer; m = Concentration may exceed ceiling limit; s = Concentration may exceed saturation concentration (Csat).
	The screening level for lead is based on noncancer effects but uses blood lead level estimates rather than a hazard quotient.
[c]	Site screening levels were selected from following critieria: NMED SSLs then adjusted USEPA RSLs. For the construction scenario, screening levels were calculated based on NMED soil screening guidance (2009a,b) where not available in guidance.

Table E.2-3
Screening Levels for the Protection of Human Health - Saturated Verdose Zone Soil Water
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	USEPA Groundwater Screening Levels for Protection of Vapor Intrusion [a] (mg/L)		
Volatile Organic Compounds			
Acetaldehyde	2.8E+00	c	
Acetone	2.2E+02	n	
Acetonitrile	4.2E+01	n	
Acetophenone	8.0E+02	n	
Acrolein	4.0E-03	n	
Acrylonitrile	8.5E-02	c	
Allyl chloride	NA	c	
Benzene	1.4E-02	c	
Bis(2-chloroethyl)ether	1.0E-01	c	
Bis(2-chloro-1-methylethyl)ether	5.1E-01	c	
Bis(2-chloroisopropyl)ether	NA	c	
Bromobenzene	NA	n	
Bromodichloromethane	2.1E-02	c	
Bromomethane	2.0E-02	n	
2-Butanone	4.4E+02	n	
tert-Butyl alcohol	NA	n	
n-Butylbenzene	2.6E-01	n	
sec-Butylbenzene	2.5E-01	n	
tert-Butylbenzene	2.9E-01	n	
Carbon disulfide	5.6E-01	n	
Carbon tetrachloride	5.0E-03	c	[b]
CFC-11	1.8E-01	n	
CFC-12	1.4E-02	n	
Chlorinated fluorocarbon (Freon 113)	1.5E+00	n	
Chlorobenzene	3.9E-01	n	
Chlorobromomethane	NA	n	
2-Chlor-1,3-butadiene	1.4E-02	n	
Chloroethane	2.8E+01	n	
2-Chloroethyl vinyl ether	NA	n	
Chloroform	8.0E-02	c	[b]
Chloromethane	6.7E-02	c	
2-Chlorophenol	1.1E+00	n	
2-Chlorotoluene	NA	n	
4-Chlorotoluene	NA	n	
Cyclohexane	NA	n	
Cymene	NA	n	
Dibenzofuran	NA	n	
1,2-Dibromoethane	3.6E-03	c	
Dibromomethane	9.9E-01	n	
1,2-Dichlorobenzene	2.6E+00	n	
1,2-Dichlorobenzene/1,3-Dichlorobenzene	NA	n	
1,4-Dichlorobenzene	8.2E+00	c	
1,4 Dichloro-2-butene	NA	c	
trans-1,4-Dichlorobutene	NA	c	
1,1-Dichloroethane	2.2E+00	c	
1,2-Dichloroethane	2.3E-02	c	
1,1-Dichloroethylene	1.9E-01	n	

Table E.2-3
Screening Levels for the Protection of Human Health - Saturated Verdose Zone Soil Water
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	USEPA Groundwater Screening Levels for Protection of Vapor Intrusion [a] (mg/L)		
1,2-Dichloroethene	NA	n	
cis-1,2-Dichloroethene	2.1E-01	n	
trans-1,2-Dichloroethene	1.8E-01	n	
Dichloromethane	5.8E-01	c	
1,2-Dichloropropane	3.5E-02	c	
1,3-Dichloropropane	NA	n	
2,2-Dichloropropane	NA	n	
1,1-Dichloropropene	NA	c	
cis-1,3-Dichloropropene	NA	c	
trans-1,3-Dichloropropene	NA	c	
Diethyl ether	5.2E-01	n	
Ethyl methacrylate	9.1E+00	n	
Ethylbenzene	7.0E-01	c	[b]
Iodomethane	NA	n	
Isopropylbenzene	8.4E-03	n	
m-Dichlorobenzene	8.3E-01	n	
Methyl acetate	7.2E+02	n	
Methyl methacrylate	5.1E+01	n	
Methyl n-butyl ketone	NA	n	
Methylacrylonitrile	6.9E-02	n	
Methylbenzene	1.5E+00	n	
Methylcylohexane	7.1E-01	n	
2-Methyl-1-propanol	2.2E+03	n	
4-Methyl-2-pentanone (MIBK)	1.4E+01	n	
Methyl tert-butyl ether (MTBE)	1.2E+02	c	
Nitrobenzene	2.0E+00	c	
Propionitrile	NA	n	
n-Propylbenzene	3.2E-01	n	
Styrene (monomer)	8.9E+00	n	
Tetrachloroethene	1.1E-02	c	
1,1,1,2-Tetrachloroethane	3.3E-02	c	
1,1,2,2-Tetrachloroethane	3.0E-02	c	
1,1,1-Trichloroethane	3.1E+00	n	
1,1,2-Trichloroethane	4.1E-02	c	
1,2,3-Trichlorobenzene	NA	n	
1,2,3-Trichloropropane	2.9E-01	c	
1,2,4-Trichlorobenzene	3.4E+00	n	
1,2,4-Trimethylbenzene	2.4E-02	n	
1,3,5-Trimethylbenzene	2.5E-02	n	
Trichloroethylene	5.0E-03	c	[c]
Vinyl acetate	9.6E+00	n	
Vinyl chloride	2.5E-03	c	
m,p-Xylene	2.3E+01	n	
o-Xylene	3.3E+01	n	
Xylenes	NA	n	

Table E.2-3
Screening Levels for the Protection of Human Health - Saturated Verdose Zone Soil Water
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	USEPA Groundwater Screening Levels for Protection of Vapor Intrusion [a] (mg/L)	
Semi Volatile Organic Compounds		
Azobenzene	NA	c
Isosafrole	NA	n
n-Nitrosodi-n-butylamine	1.2E-03	c
o,o,o-Triethyl phosphorothioate	NA	n
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	NA	n
Acenaphthylene	NA	n
Anthracene	NA	n
1-Chloronaphthalene	NA	n
2-Chloronaphthalene	NA	n
Fluorene	NA	n
1-Methylnaphthalene	NA	c
2-Methylnaphthalene	3.3E+00	n
Naphthalene	1.5E-01	c
Phenanthrene	NA	n

Notes:
mg/L = Milligrams per liters.
c = Cancer.
n = Noncancer.
NA = Not available.

[a] Groundwater screening levels for the protection of human health from vapor intrusion (USEPA, 2002c). Target cancer risk is $1 \times 10^{-5.}$

[b] The target groundwater concentration is the MCL. The MCL for chloroform is for total trihalomethanes; and the MCL listed for m-xylene, o-xylene, and p-xylene is for total xylenes.

[c] The target concentration for trichloroethylene (TCE) is based on the upper bound cancer slope factor identified in the USEPA (2001e) draft risk assessment for TCE. That draft risk assessment is still undergoing review; therefore, the slope factor and the target concentratrion values for TCE might be revised.

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Volatile Organic Compounds								
Acetaldehyde	NA	NA	1.88E-02	n	2.20E-02	c	1.88E-02	n
Acetone	NA	NA	2.18E+01	n	2.20E+01	n	2.18E+01	n
Acetonitrile	NA	NA	NA		1.30E-01	n	1.30E-01	n
Acetophenone	NA	NA	3.65E+00	n	3.70E+00	n	3.65E+00	n
Acrolein	NA	NA	4.16E-05	n	4.20E-05	n	4.16E-05	n
Acrylonitrile	NA	NA	4.54E-04	c	4.50E-04	c	4.54E-04	c
Allyl chloride	NA	NA	NA		6.50E-03	c	6.50E-03	c
Benzene	5.00E-03	1.00E-02	4.13E-03	c	4.10E-03	c	5.00E-03	c
Bis(2-chloroethyl)ether	NA	NA	NA		1.20E-04	c	1.20E-04	c
Bis(2-chloro-1-methylethyl)ether	NA	NA	NA		3.20E-03	c	3.20E-03	c
Bis(2-chloroisopropyl)ether	NA	NA	9.60E-03	c	NA		9.60E-03	c
Bromobenzene	NA	NA	NA		8.80E-02	n	8.80E-02	n
Bromodichloromethane	8.00E-02	NA	1.17E-03	c	1.20E-03	c	8.00E-02	c
Bromomethane	NA	NA	8.66E-03	n	8.70E-03	n	8.66E-03	n
2-Butanone	NA	NA	NA		7.10E+00	n	7.10E+00	n
tert-Butyl alcohol	NA	NA	NA		NA		NA	
n-Butylbenzene	NA	NA	NA		NA		NA	
sec-Butylbenzene	NA	NA	NA		NA		NA	
tert-Butylbenzene	NA	NA	NA		NA		NA	
Carbon disulfide	NA	NA	1.04E+00	n	1.00E+00	n	1.04E+00	n
Carbon tetrachloride	5.00E-03	1.00E-02	1.99E-03	c	2.00E-03	c	5.00E-03	c
CFC-11	NA	NA	NA		1.30E+00	n	1.30E+00	n
CFC-12	NA	NA	NA		3.90E-01	n	3.90E-01	n
Chlorinated fluorocarbon (Freon 113)	NA	NA	5.92E+01	n	5.90E+01	n	5.92E+01	n
Chlorobenzene	1.00E-01	NA	9.13E-02	n	9.10E-02	n	1.00E-01	n
Chlorobromomethane	NA	NA	NA		NA		NA	
2-Chlor-1,3-butadiene	NA	NA	NA		1.40E-02	n	1.40E-02	n
Chlorodibromomethane	8.00E-02	NA	1.47E-03	c	1.50E-03	c	8.00E-02	c
Chloroethane	NA	NA	2.09E+01	n	2.10E+01	n	2.09E+01	n
2-Chloroethyl vinyl ether	NA	NA	NA		NA		NA	
Chloroform	8.00E-02	1.00E-01	1.93E-03	c	1.90E-03	c	8.00E-02	c
Chloromethane	NA	NA	1.78E-02	c	1.90E-01	n	1.78E-02	c
2-Chlorophenol	NA	NA	1.83E-01	n	1.80E-01	n	1.83E-01	n
2-Chlorotoluene	NA	NA	7.30E-01	n	7.30E-01	n	7.30E-01	n
4-Chlorotoluene	NA	NA	NA		2.60E+00	n	2.60E+00	n

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Cyclohexane	NA	NA	NA		1.30E+01	n	1.30E+01	n
Cymene	NA	NA	NA		NA		NA	
Dibenzofuran	NA	NA	NA		3.70E-02	n	3.70E-02	n
1,2-Dibromo-3-chloropropane (dbcp)	2.00E-04	NA	NA		3.20E-06	c	2.00E-04	c
1,2-Dibromoethane	5.00E-05	NA	6.53E-05	c	6.50E-05	c	5.00E-05	c
Dibromomethane	NA	NA	3.65E-01	n	8.20E-03	n	3.65E-01	n
1,2-Dichlorobenzene	6.00E-01	NA	3.70E-01	n	3.70E-01	n	6.00E-01	n
1,2-Dichlorobenzene/1,3-Dichlorobenzene	NA	NA	NA		NA		NA	
1,4-Dichlorobenzene	7.50E-02	NA	4.27E-03	c	4.30E-03	c	7.50E-02	c
1,4 Dichloro-2-butene	NA	NA	NA		1.20E-05	c	1.20E-05	c
trans-1,4-Dichlorobutene	NA	NA	NA		1.20E-05	c	1.20E-05	c
1,1-Dichloroethane	NA	2.50E-02	2.42E-02	c	2.40E-02	c	2.50E-02	c
1,2-Dichloroethane	5.00E-03	1.00E-02	1.49E-03	c	1.50E-03	c	5.00E-03	c
1,1-Dichloroethylene	7.00E-03	5.00E-03	3.40E-01	n	3.40E-01	n	5.00E-03	n
1,2-Dichloroethene	7.00E-02	NA	NA		3.30E-01	n	7.00E-02	n
cis-1,2-Dichloroethene	7.00E-02	NA	3.65E-01	n	3.70E-01	n	7.00E-02	n
trans-1,2-Dichloroethene	1.00E-01	NA	1.07E-01	n	1.10E-01	n	1.00E-01	n
Dichloromethane	5.00E-03	1.00E-01	NA		4.80E-02	c	5.00E-03	c
1,2-Dichloropropane	5.00E-03	NA	3.86E-03	c	3.90E-03	c	5.00E-03	c
1,3-Dichloropropane	NA	NA	NA		7.30E-01	n	7.30E-01	n
2,2-Dichloropropane	NA	NA	NA		NA		NA	
1,1-Dichloropropene	NA	NA	NA		NA		NA	
cis-1,3-Dichloropropene	NA	NA	4.33E-03	c	NA		4.33E-03	c
trans-1,3-Dichloropropene	NA	NA	4.33E-03	c	NA		4.33E-03	c
Diethyl ether	NA	NA	NA		7.30E+00	n	7.30E+00	n
Ethanol	NA	NA	NA		NA		NA	
Ethyl methacrylate	NA	NA	3.29E+00	n	3.30E+00	n	3.29E+00	n
Ethylbenzene	7.00E-01	7.50E-01	1.48E-02	c	1.50E-02	c	7.00E-01	c
Iodomethane	NA	NA	NA		NA		NA	
Isopropyl alcohol	NA	NA	NA		NA		NA	
Isopropylbenzene	NA	NA	6.79E-01	n	6.80E-01	n	6.79E-01	n
m-Dichlorobenzene	6.00E-01	NA	NA		NA		6.00E-01	
Methyl acetate	NA	NA	3.65E+01	n	3.70E+01	n	3.65E+01	n
Methyl methacrylate	NA	NA	1.42E+00	n	1.40E+00	n	1.42E+00	n
Methyl n-butyl ketone	NA	NA	NA		4.70E-02	n	4.70E-02	n
Methylacrylonitrile	NA	NA	NA		1.00E-03	n	1.00E-03	n

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Methylbenzene	1.00E+00	7.50E-01	NA		2.30E+00	n	7.50E-01	n
Methylcylohexane	NA	NA	NA		NA		NA	
2-Methyl-1-propanol	NA	NA	NA		1.10E+01	n	1.10E+01	n
4-Methyl-2-pentanone (MIBK)	NA	NA	NA		2.00E+00	n	2.00E+00	n
Methyl tert-butyl ether (MTBE)	NA	NA	1.25E-01	c	1.20E-01	c	1.25E-01	c
Nitrobenzene	NA	NA	1.49E-02	n	1.20E-03	c	1.49E-02	n
Propionitrile	NA	NA	NA		NA		NA	
n-Propylbenzene	NA	NA	NA		1.30E+00	n	1.30E+00	n
Styrene (monomer)	1.00E-01	NA	NA		1.60E+00	n	1.00E-01	n
Tetrachloroethene	5.00E-03	2.00E-02	1.08E-03	c	1.10E-03	c	5.00E-03	c
1,1,1,2-Tetrachloroethane	NA	NA	5.24E-03	c	5.20E-03	c	5.24E-03	c
1,1,2,2-Tetrachloroethane	NA	1.00E-02	6.71E-04	c	6.70E-04	c	1.00E-02	c
1,1,1-Trichloroethane	2.00E-01	6.00E-02	9.13E+00	n	9.10E+00	n	6.00E-02	n
1,1,2-Trichloroethane	5.00E-03	1.00E-02	2.42E-03	c	2.40E-03	c	5.00E-03	c
1,2,3-Trichlorobenzene	NA	NA	NA		2.90E-02	n	2.90E-02	n
1,2,3-Trichloropropane	NA	NA	9.60E-05	c	7.20E-06	c	9.60E-05	c
1,2,4-Trichlorobenzene	7.00E-02	NA	8.16E-03	n	2.30E-02	c	7.00E-02	c
1,2,4-Trimethylbenzene	NA	NA	NA		1.50E-02	n	1.50E-02	n
1,3,5-Trimethylbenzene	NA	NA	NA		3.70E-01	n	3.70E-01	n
Trichloroethylene	5.00E-03	1.00E-01	1.65E-02	c	2.00E-02	c	5.00E-03	c
Vinyl acetate	NA	NA	4.12E-01	n	4.10E-01	n	4.12E-01	n
Vinyl chloride	2.00E-03	1.00E-03	8.61E-04	c	1.60E-04	c	1.00E-03	c
m,p-Xylene	1.00E+01	NA	NA		1.20E+00	n	1.00E+01	n
o-Xylene	1.00E+01	NA	1.43E+00	n	1.20E+00	n	1.00E+01	n
1,3-Xylene/1,4-Xylene	NA	NA	NA		NA		NA	
Xylenes	1.00E+01	6.20E-01	2.03E-01	n	2.00E-01	n	6.20E-01	n
Semi Volatile Organic Compounds								
2-Acetylaminofluorene	NA	NA	NA		1.80E-04	c	1.80E-04	c
4-Aminobiphenyl	NA	NA	NA		3.20E-05	c	3.20E-05	c
Aniline	NA	NA	NA		1.20E-01	c	1.20E-01	c
Azobenzene	NA	NA	NA		1.20E-03	c	1.20E-03	c
Benzidine	NA	NA	2.92E-06	c	9.40E-07	c	2.92E-06	c
Benzoic acid	NA	NA	NA		1.50E+02	n	1.50E+02	n
Benzyl alcohol	NA	NA	NA		3.70E+00	n	3.70E+00	n
Benzyl butyl phthalate	NA	NA	NA		3.50E-01	c	3.50E-01	c
Bis(2-chloroethoxy)methane	NA	NA	NA		1.10E-01	n	1.10E-01	n

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Bis(2-ethylhexyl)phthalate	6.00E-03	NA	NA		4.80E-02	c	6.00E-03	c
4-Bromophenyl phenyl ether	NA	NA	NA		NA		NA	
2-Butoxy ethanol	NA	NA	NA		1.80E+01	n	1.80E+01	n
Carbazole	NA	NA	NA		NA		NA	
Chlordecone (Kepone)	NA	NA	NA		6.70E-05	c	6.70E-05	c
p-Chloroaniline	NA	NA	NA		3.40E-03	c	3.40E-03	c
Chlorobenzilate	NA	NA	NA		6.10E-03	c	6.10E-03	c
4-Chloro-3-methylphenol	NA	NA	NA		3.70E+00	n	3.70E+00	n
Chlorophenols	NA	NA	NA		1.10E+00	n	1.10E+00	n
4-Chlorophenyl phenyl ether	NA	NA	NA		NA		NA	
Coumaphos	NA	NA	NA		NA		NA	
m,p-Cresol	NA	NA	NA		9.30E-01	n	9.30E-01	n
Dibenz[a,,j]acridine	NA	NA	NA		NA		NA	
Dichlorvos (DDVP)	NA	NA	NA		2.30E-03	c	2.30E-03	c
3,3'-Dichlorobenzidine	NA	NA	NA		1.50E-03	c	1.50E-03	c
2,4-Dichlorophenol	NA	NA	1.10E-01	n	1.10E-01	n	1.10E-01	n
2,6-Dichlorophenol	NA	NA	NA		NA		NA	
Diethyl phthalate	NA	NA	2.92E+01	n	2.90E+01	n	2.92E+01	n
o,o-Diethyl o-pyrazinyl phosphorothioate	NA	NA	NA		NA		NA	
4-Dimethylaminoazobenzene	NA	NA	NA		1.50E-04	c	1.50E-04	c
3,3'-Dimethylbenzidine	NA	NA	NA		6.10E-05	c	6.10E-05	c
2,4-Dimethylphenol	NA	NA	7.30E-01	n	7.30E-01	n	7.30E-01	n
2,4-Dinitrophenol	NA	NA	7.30E-02	n	7.30E-02	n	7.30E-02	n
2,4-Dinitrotoluene	NA	NA	2.17E-03	c	2.20E-03	c	2.17E-03	c
1,2-Diphenylhydrazine	NA	NA	8.40E-04	c	8.40E-04	c	8.40E-04	c
a,a-Dimethylphenethylamine	NA	NA	NA		NA		NA	
Dimethyl phthalate	NA	NA	3.65E+02	n	NA		3.65E+02	n
Di-n-butyl phthalate	NA	NA	3.65E+00	n	3.70E+00	n	3.65E+00	n
m-Dinitrobenzene	NA	NA	NA		3.70E-03	n	3.70E-03	n
Di-n-octyl phthalate	NA	NA	NA		NA		NA	
1,4-Dioxane	NA	NA	6.11E-02	c	6.10E-02	c	6.11E-02	c
Diphenylamine	NA	NA	NA		9.10E-01	n	9.10E-01	n
Diphenylhydrazine	NA	NA	NA		NA		NA	
Ethyl methanesulfonate	NA	NA	NA		NA		NA	
Famphur	NA	NA	NA		NA		NA	
Hexachloro-1,3-butadiene	NA	NA	8.62E-03	c	8.60E-03	c	8.62E-03	c

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Hexachlorobenzene	1.00E-03	NA	4.20E-04	c	4.20E-04	c	1.00E-03	c
Hexachlorocyclopentadiene	5.00E-02	NA	2.19E-01	n	2.20E-01	n	5.00E-02	n
Hexachloroethane	NA	NA	3.65E-02	n	4.80E-02	c	3.65E-02	n
Hexachlorophene (HCP)	NA	NA	NA		1.10E-02	n	1.10E-02	n
Hexachloropropene	NA	NA	NA		NA		NA	
Isodrin	NA	NA	NA		NA		NA	
Isosafrole	NA	NA	NA		NA		NA	
Methanamine, n-methyl-n-nitroso	NA	NA	NA		4.20E-06	c	4.20E-06	c
Methapyrilene	NA	NA	NA		NA		NA	
2-Methyl-4,6-dinitrophenol	NA	NA	NA		3.70E-03	n	3.70E-03	n
Methyl methanesulfonate	NA	NA	NA		6.80E-03	c	6.80E-03	c
Methyl parathion	NA	NA	NA		9.10E-03	n	9.10E-03	n
2-Methylphenol	NA	NA	NA		1.80E+00	n	1.80E+00	n
3-Methylphenol	NA	NA	NA		1.80E+00	n	1.80E+00	n
4-Methylphenol	NA	NA	NA		1.80E-01	n	1.80E-01	n
2-Methyl pyridine	NA	NA	NA		NA		NA	
1,4-Naphthoquinone	NA	NA	NA		NA		NA	
1-Naphthylamine	NA	NA	NA		NA		NA	
2-Naphthylamine	NA	NA	NA		3.70E-04	c	3.70E-04	c
2-Nitroaniline	NA	NA	NA		3.70E-01	n	3.70E-01	n
3-Nitroaniline	NA	NA	NA		NA		NA	
p-Nitroaniline	NA	NA	NA		3.40E-02	c	3.40E-02	c
n-Nitrodimethylamine	NA	NA	NA		NA		NA	
2-Nitrophenol	NA	NA	NA		NA		NA	
4-Nitrophenol	NA	NA	NA		NA		NA	
4-Nitroquinoline-n-oxide	NA	NA	NA		NA		NA	
n-Nitrosodiethylamine	NA	NA	4.48E-06	c	1.40E-06	c	4.48E-06	c
n-Nitrosodi-n-butylamine	NA	NA	2.44E-05	c	2.40E-05	c	2.44E-05	c
n-Nitrosodi-n-propylamine	NA	NA	NA		9.60E-05	c	9.60E-05	c
n-Nitrosodiphenylamine	NA	NA	1.37E-01	c	1.40E-01	c	1.37E-01	c
n-Nitrosodiphenylamine & diphenylamine	NA	NA	NA		NA		NA	
n-Nitrosomethyl-ethylamine	NA	NA	NA		3.10E-05	c	3.10E-05	c
n-Nitrosomorpholine	NA	NA	NA		1.00E-04	c	1.00E-04	c
n-Nitrosopiperidine	NA	NA	NA		7.20E-05	c	7.20E-05	c
n-Nitrosopyrrolidine	NA	NA	3.20E-04	c	3.20E-04	c	3.20E-04	c
5-Nitro-o-toluidine	NA	NA	NA		2.00E-02	c	2.00E-02	c

Table E.2-4
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White Sands Missile Range, New Mexico

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	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Pentachlorobenzene	NA	NA	2.92E-02	n	2.90E-02	n	2.92E-02	n
Pentachloroethane	NA	NA	NA		7.50E-03	c	7.50E-03	c
Pentachlorophenol	1.00E-03	NA	5.60E-03	c	5.60E-03	c	1.00E-03	c
Phenacetin	NA	NA	NA		3.10E-01	c	3.10E-01	c
Phenol	NA	5.00E-03	1.10E+01	n	1.10E+01	n	5.00E-03	n
p-Phenylenediamine	NA	NA	NA		6.90E+00	n	6.90E+00	n
Propyzamide	NA	NA	NA		2.70E+00	n	2.70E+00	n
Pyridine	NA	NA	NA		3.70E-02	n	3.70E-02	n
Safrole	NA	NA	NA		3.10E-03	c	3.10E-03	c
Sulprofos	NA	NA	NA		NA		NA	
1,2,4,5-Tetrachlorobenzene	NA	NA	1.10E-02	n	1.10E-02	n	1.10E-02	n
o-Toluidine	NA	NA	NA		NA		NA	
Tribomomethane	8.00E-02	NA	NA		8.50E-02	c	8.00E-02	c
2,4,5-Trichlorophenol	NA	NA	3.65E+00	n	3.70E+00	n	3.65E+00	n
2,4,6-Trichlorophenol	NA	NA	3.65E-02	n	6.10E-02	c	3.65E-02	n
o,o,o-Triethyl phosphorothioate	NA	NA	NA		NA		NA	
3,5,5-Trimethyl-2-cyclohexene-1-one	NA	NA	NA		7.10E-01	c	7.10E-01	c
1,3,5-Trinitrobenzene	NA	NA	NA		1.10E+00	n	1.10E+00	n
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	NA	NA	2.19E+00	n	2.20E+00	n	2.19E+00	n
Acenaphthylene	NA	NA	NA		NA		NA	
Anthracene	NA	NA	1.10E+01	n	1.10E+01	n	1.10E+01	n
Benzo(a)anthracene	2.00E-04	NA	9.21E-04	c	2.90E-04	c	2.00E-04	c
Benzo(a)pyrene	2.00E-04	7.00E-04	9.21E-05	c	2.90E-05	c	2.00E-04	c
Benzo(b)fluoranthene	2.00E-04	NA	9.21E-04	c	2.90E-04	c	2.00E-04	c
Benzo(b&k)fluoranthene	NA	NA	NA		NA		NA	
Benzo(g,h,i)perylene	2.00E-04	NA	NA		NA		2.00E-04	
Benzo(k)fluoranthene	2.00E-04	NA	9.21E-03	c	2.90E-03	c	2.00E-04	c
1,2-Benzphenanthracene	2.00E-04	NA	NA		2.90E-02	c	2.00E-04	c
1-Chloronaphthalene	NA	NA	2.92E+00	n	2.90E+00	n	2.92E+00	n
2-Chloronaphthalene	NA	NA	2.92E+00	n	2.90E+00	n	2.92E+00	n
Dibenz(a,h)anthracene	2.00E-04	NA	9.21E-05	c	2.90E-05	c	2.00E-04	c
7,12-Dimethylbenz(a)anthracene	NA	NA	NA		2.70E-06	c	2.70E-06	c
Fluoranthene	NA	NA	1.46E+00	n	1.50E+00	n	1.46E+00	n
Fluorene	NA	NA	1.46E+00	n	1.50E+00	n	1.46E+00	n
Indeno(1,2,3-cd)pyrene	2.00E-04	NA	NA		2.90E-04	c	2.00E-04	c

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
3-Methylchloranthrene	NA	NA	NA		3.10E-05	c	3.10E-05	c
1-Methylnaphthalene	NA	3.00E-02	NA		2.30E-02	c	3.00E-02	c
2-Methylnaphthalene	NA	3.00E-02	NA		1.50E-01	n	3.00E-02	n
Naphthalene	NA	3.00E-02	1.43E-03	c	1.40E-03	c	3.00E-02	c
Phenanthrene	NA	NA	1.10E+00	n	NA		1.10E+00	n
Pyrene	NA	NA	1.10E+00	n	1.10E+00	n	1.10E+00	n
Dioxin/Furan Compounds								
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	NA	NA	NA		NA		NA	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	NA	NA	NA		NA		NA	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	3.00E-08	NA	NA		5.20E-09	c	3.00E-08	c
Total HxCDD	NA	NA	NA		NA		NA	
2,3,4,7,8-Pentachlorodibenzofuran	NA	NA	NA		NA		NA	
2,3,7,8-Tetrachlorodibenzofuran	NA	NA	NA		NA		NA	
PeCDF (Total)	NA	NA	NA		NA		NA	
Total HxCDF	NA	NA	NA		NA		NA	
Herbicides								
2,4-D	7.00E-02	NA	NA		3.70E-01	n	7.00E-02	n
2,4-DB	NA	NA	NA		2.90E-01	n	2.90E-01	n
Dicamba	NA	NA	NA		1.10E+00	n	1.10E+00	n
2,2-Dichloropropionic acid	NA	NA	NA		1.10E+00	n	1.10E+00	n
Dichlorprop	NA	NA	NA		NA		NA	
MCPP	NA	NA	NA		3.70E-02	n	3.70E-02	n
2,4,5-T	NA	NA	NA		3.70E-01	n	3.70E-01	n
2,4,5-TP (Silvex)	NA	NA	NA		2.90E-01	n	2.90E-01	n
Pesticides								
Aldrin	NA	NA	3.92E-05	c	4.00E-05	c	3.92E-05	c
alpha-BHC	NA	NA	NA		1.10E-04	c	1.10E-04	c
alpha-Chlordane	2.00E-03	NA	NA		NA		2.00E-03	
Aramite	NA	NA	NA		2.70E-02	c	2.70E-02	c
Azinphos-methyl (Guthion)	NA	NA	NA		1.10E-01	n	1.10E-01	n
Basudin, neocidol	NA	NA	NA		2.60E-02	n	2.60E-02	n
beta-BHC	NA	NA	3.73E-04	c	3.70E-04	c	3.73E-04	c
Camphechlor	3.00E-03	NA	NA		6.10E-04	c	3.00E-03	c
Chlordane	2.00E-03	NA	1.92E-03	c	NA		2.00E-03	
Chlorpyrifos	NA	NA	NA		1.10E-01	n	1.10E-01	n
Cygon	NA	NA	NA		7.30E-03	n	7.30E-03	n

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
4,4-DDD	NA	NA	2.80E-03	c	2.80E-03	c	2.80E-03	c
4,4-DDE	NA	NA	1.98E-03	c	2.00E-03	c	1.98E-03	c
4,4-DDT	NA	NA	1.98E-03	c	2.00E-03	c	1.98E-03	c
Dasanit	NA	NA	NA		NA		NA	
delta-BHC	NA	NA	NA		NA		NA	
Demeton	NA	NA	NA		1.50E-03	n	1.50E-03	n
Diallate	NA	NA	NA		1.10E-02	c	1.10E-02	c
Dibrom	NA	NA	NA		7.30E-02	n	7.30E-02	n
Dieldrin	NA	NA	4.20E-05	c	4.20E-05	c	4.20E-05	c
Dinoseb	7.00E-03	NA	NA		3.70E-02	n	7.00E-03	n
Disulfoton	NA	NA	NA		1.50E-03	n	1.50E-03	n
Endosulfan I	NA	NA	NA		NA		NA	
Endosulfan II	NA	NA	NA		NA		NA	
Endosulfan sulfate	NA	NA	NA		NA		NA	
Endrin	2.00E-03	NA	1.10E-02	n	1.10E-02	n	2.00E-03	n
Endrin aldehyde	NA	NA	NA		NA		NA	
Endrin ketone	NA	NA	NA		NA		NA	
EPN	NA	NA	NA		3.70E-04	n	3.70E-04	n
Ethoprophos	NA	NA	NA		NA		NA	
Fenthion	NA	NA	NA		NA		NA	
Folex	NA	NA	NA		1.10E-03	n	1.10E-03	n
gamma-BHC	2.00E-04	NA	6.11E-04	c	6.10E-04	c	2.00E-04	c
gamma-Chlordane	NA	NA	NA		NA		NA	
Heptachlor	4.00E-04	NA	1.49E-04	c	1.50E-04	c	4.00E-04	c
Heptachlor epoxide	2.00E-04	NA	NA		7.40E-05	c	2.00E-04	c
Malathion	NA	NA	NA		7.30E-01	n	7.30E-01	n
MCPA	NA	NA	NA		1.80E-02	n	1.80E-02	n
Mevinphos	NA	NA	NA		NA		NA	
Monocrotophos	NA	NA	NA		NA		NA	
Parathion	NA	NA	NA		2.20E-01	n	2.20E-01	n
Pentachloronitrobenzene	NA	NA	NA		2.60E-03	c	2.60E-03	c
Phorate	NA	NA	NA		7.30E-03	n	7.30E-03	n
Ronnel	NA	NA	NA		1.80E+00	n	1.80E+00	n
Sulfotep	NA	NA	NA		1.80E-02	n	1.80E-02	n
TEPP	NA	NA	NA		NA		NA	
Tetrachlorvinphos	NA	NA	NA		NA		NA	

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Tokuthion (Protothiofos)	NA	NA	NA		NA		NA	
Trichloronate	NA	NA	NA		NA		NA	
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	4.00E-02	NA	NA		1.80E-01	n	4.00E-02	n
Total Petroleum Hydrocarbons (TPH)								
>C10-C28	NA	NA	NA		NA		NA	
>C28-C35	NA	NA	NA		NA		NA	
>C6-C10	NA	NA	NA		NA		NA	
Diesel (c12-c24)	NA	NA	NA		NA		NA	
DRO	NA	NA	NA		NA		NA	
GRO	NA	NA	NA		NA		NA	
JP-4	NA	NA	NA		NA		NA	
JP-8	NA	NA	NA		NA		NA	
Motor oil (c24-c40)	NA	NA	NA		NA		NA	
Oil range	NA	NA	NA		NA		NA	
Petroleum hydrocarbons	NA	NA	NA		NA		NA	
TPH	NA	NA	NA		NA		NA	
TPRH	NA	NA	NA		NA		NA	
Polychlorinated Biphenyls								
Aroclor 1221	5.00E-04	1.00E-03	6.81E-05	c	6.80E-05	c	5.00E-04	c
Aroclor 1232	5.00E-04	1.00E-03	6.81E-05	c	6.80E-05	c	5.00E-04	c
Aroclor 1242	5.00E-04	1.00E-03	3.36E-04	c	3.40E-04	c	5.00E-04	c
Aroclor 1254	5.00E-04	1.00E-03	3.36E-04	c	3.40E-04	c	5.00E-04	c
Aroclor 1260	5.00E-04	1.00E-03	3.36E-04	c	3.40E-04	c	5.00E-04	c
Aroclor-1016	5.00E-04	1.00E-03	NA		9.60E-03	c	5.00E-04	c
Aroclor-1248	5.00E-04	1.00E-03	NA		3.40E-04	c	5.00E-04	c
PCB (Total)	5.00E-04	1.00E-03	NA		NA		5.00E-04	
Explosives								
2-Amino-4,6-dinitrotoluene	NA	NA	NA		7.30E-02	n	7.30E-02	n
4-Amino-2,6-dinitrotoluene	NA	NA	NA		7.30E-02	n	7.30E-02	n
4-Amino-dnt / 2-Amino-dnt	NA	NA	NA		NA		NA	
Dinitrobenzene	NA	NA	NA		NA		NA	
2,6-Dinitrotoluene	NA	NA	3.65E-02	n	3.70E-02	n	3.65E-02	n
2,6-DNT / 2,4-DNT	NA	NA	NA		NA		NA	
Nitroglycerin	NA	NA	3.65E-03	n	3.70E-03	n	3.65E-03	n
2-Nitrotoluene	NA	NA	3.05E-03	c	3.10E-03	c	3.05E-03	c
3-Nitrotoluene	NA	NA	7.30E-01	n	3.70E-03	n	7.30E-01	n

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
4-Nitrotoluene	NA	NA	4.20E-02	c	4.20E-02	c	4.20E-02	c
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	NA	NA	NA		1.80E+00	n	1.80E+00	n
Pentaerythritol tetranitrate	NA	NA	NA		NA		NA	
Perchlorate	NA	NA	NA		NA		NA	
RDX	NA	NA	6.11E-03	c	6.10E-03	c	6.11E-03	c
Tetryl	NA	NA	1.46E-01	n	1.50E-01	n	1.46E-01	n
2,4,6-Trinitrotoluene	NA	NA	1.83E-02	n	2.20E-02	c	1.83E-02	n
Inorganics								
Aluminum	NA	NA	3.65E+01	n	3.70E+01	n	3.65E+01	n
Ammonia	NA	NA	NA		NA		NA	
Ammonium Perchlorate	NA	NA	NA		2.60E-02	n	2.60E-02	n
Antimony	6.00E-03	NA	1.46E-02	n	1.50E-02	n	6.00E-03	n
Arsenic	1.00E-02	1.00E-01	4.48E-04	c	4.50E-04	c	1.00E-02	c
Barium	2.00E+00	1.00E+00	7.30E+00	n	7.30E+00	n	1.00E+00	n
Beryllium	4.00E-03	NA	7.30E-02	n	7.30E-02	n	4.00E-03	n
Boron	NA	NA	7.30E+00	n	7.30E+00	n	7.30E+00	n
Cadmium	5.00E-03	1.00E-02	1.83E-02	n	1.80E-02	n	5.00E-03	n
Calcium metal	NA	NA	NA		NA		NA	
Chromium	1.00E-01	5.00E-02	1.10E-01	n	1.04E-02	c	5.00E-02	n
Chromium (IV)	NA	NA	NA		NA		NA	
Chromium (Hexavalent)	1.00E-01	NA	NA		4.30E-04	c	1.00E-01	n
Cobalt	NA	NA	NA		1.10E-02	n	1.10E-02	n
Copper	1.30E+00	1.00E+00	1.46E+00	n	1.50E+00	n	1.00E+00	n
Cyanide	2.00E-01	2.00E-01	7.30E-01	n	7.30E-01	n	2.00E-01	n
Cyanide (Total)	NA	NA	NA		NA		NA	
Fluoride	NA	1.60E+00	2.19E+00	n	NA		1.60E+00	
Hydrogen cyanide	NA	NA	6.20E-03	n	6.20E-03	n	6.20E-03	n
Hydrogen sulfide	NA	NA	NA		NA		NA	
Iron	3.00E-01	1.00E+00	2.56E+01	n	2.60E+01	n	3.00E-01	n
Lead	1.50E-02	5.00E-02	NA		NA		1.50E-02	
Lithium	NA	NA	NA		7.30E-02	n	7.30E-02	n
Magnesium	NA	NA	NA		NA		NA	
Manganese	5.00E-02	2.00E-01	8.76E-01	n	NA		5.00E-02	
Mercury	2.00E-03	2.00E-03	5.62E-04	n	5.70E-04	n	2.00E-03	n
Molybdenum	NA	NA	1.83E-01	n	1.80E-01	n	1.83E-01	n
Nickel	NA	NA	7.30E-01	n	7.30E-01	n	7.30E-01	n

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]		Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]		Regional Groundwater Screening Level [e]	
	(mg/L)	(mg/L or pCi/L)	(mg/L)		(mg/L)		(mg/L)	
Nitrate	1.00E+01	1.00E+01	5.84E+01	n	5.80E+01	n	1.00E+01	n
Nitrate + Nitrite	NA	NA	NA		NA		NA	
Nitrate / Nitrite	NA	NA	NA		NA		NA	
Nitrogen	NA	NA	NA		NA		NA	
Phosphorus	NA	NA	NA		NA		NA	
Potassium	NA	NA	NA		NA		NA	
Selenium	5.00E-02	5.00E-02	1.83E-01	n	1.80E-01	n	5.00E-02	n
Silver	1.00E-01	5.00E-02	1.83E-01	n	1.80E-01	n	5.00E-02	n
Sodium	NA	NA	NA		NA		NA	
Strontium	NA	NA	2.19E+01	n	2.20E+01	n	2.19E+01	n
Sulfate	2.50E+02	6.00E+02	NA		NA		2.50E+02	
Sulfide	NA	NA	NA		NA		NA	
Thallium	2.00E-03	NA	2.41E-03	n	NA		2.00E-03	
Tin	NA	NA	NA		2.20E+01	n	2.20E+01	n
Uranium	3.00E-02	3.00E-02	NA		NA		3.00E-02	
Vanadium	NA	NA	1.83E-01	n	1.80E-01	n	1.83E-01	n
Zinc	5.00E+00	1.00E+01	1.10E+01	n	1.10E+01	n	5.00E+00	n
Radiometrics								
Gross alpha	NA	NA	NA		NA		NA	
Gross beta	NA	NA	NA		NA		NA	
Radium 228	NA	3.10E+01	NA		NA		3.10E+01	
Other								
Bromide	NA	NA	NA		NA		NA	
Chloride	2.50E+02	2.50E+02	NA		NA		2.50E+02	

Notes:
mg/L = Milligrams per liter.
c = Cancer.
n = Noncancer.
NA = Not available.
pCi/L = Picocuries per liter.
USEPA = United States Environmental Protection Agency.

[a] United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL).
[b] NMED Groundwater Quality Bureau standards (NMED, 2002).

Table E.2-4
Screening Levels for the Protection of Human Health - Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	USEPA MCL [a]	NMED Groundwater Quality Standards (QS) [b]	NMED Tap Water Screening Level (SL) [c]	Adjusted Tap Water Regional Screening Level (Tap Water RSL) [d]	Regional Groundwater Screening Level [e]
	(mg/L)	(mg/L or pCi/L)	(mg/L)	(mg/L)	(mg/L)

[c] NMED Technical Background Document for Development of Soil Screening Levels (NMED, 2009a).

[d] The adjusted screening levels were regional screening levels for the residential scenario from USEPA (2009a). Screening levels based on cancer effects were adjusted by a factor of 10 to reflect a target risk of 1 x10-5.
c = cancer; n = noncancer; m = Concentration may exceed ceiling limit; s = Concentration may exceed saturation concentration (Csat).

[e] Regional groundwater screening levels were selected according to the following hierarchy: lower of MCL and NMDE QSs, NMED tap water SL, then adjusted USEPA tap water RSLs.

Table E.2-5
Target Organs
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Target Organs	
	Organ	Inhalation
Volatile Organic Compounds		
Acetone	liver, kidney	NA
Acetophenone	NR	NA
Acrylonitrile	testicles	nasal
Benzene	blood	blood
Bis(2-chloro-1-methylethyl)ether	blood	NA
Bromobenzene	liver	liver
Bromodichloromethane	kidney	NA
Bromomethane	forestomach	nasal
2-Butanone	fetus	developmental
n-Butylbenzene	liver, kidney	developmental
sec-Butylbenzene	kidney	kidney, adrenal
tert-Butylbenzene	kidney	kidney, adrenal
Carbon disulfide	fetus	PNS
Carbon tetrachloride	liver	liver
Chlorinated fluorocarbon (Freon 113)	CNS	WB
Chlorobenzene	liver	NA
Chlorodibromomethane	liver	NA
Chloroethane	NA	fetus
Chloroform	liver	liver, kidney, CNS
Chloromethane	NA	brain
2-Chlorophenol	reproduction	NA
2-Chlorotoluene	WB	NA
4-Chlorotoluene	WB	NA
Cymene	NA	NA
Dibenzofuran	NA	NA
1,2-Dibromoethane	testicles, liver, adrenal cortex	nasal inflamation
Dibromomethane	NA	NA
1,4-Dichlorobenzene	NA	liver
1,1-Dichloroethane	NR	NA
1,2-Dichloroethane	kidney	liver
1,1-Dichloroethylene	liver	liver
cis-1,2-Dichloroethene	blood	NA
trans-1,2-Dichloroethene	blood	NA
Dichloromethane	liver	liver
1,2-Dichloropropane	NA	nasal
1,3-Dichloropropane	NA	NA
2,2-Dichloropropane	NA	NA
1,1-Dichloropropene	NA	NA
cis-1,3-Dichloropropene	WB	nasal
trans-1,3-Dichloropropene	WB	nasal
Ethanol	NA	NA
Ethylbenzene	liver, kidney	developmental
Iodomethane	forestomach	nasal
Isopropylbenzene	kidney	kidney, adrenal
m-Dichlorobenzene	NA	NA
Methyl tert-butyl ether (MTBE)	NA	liver, kidney
Nitrobenzene	blood, adrenal, liver, kidney	blood, adrenal, liver, kidney
n-Propylbenzene	NA	NA
Styrene (monomer)	liver, RBCs	CNS
Tetrachloroethene	liver	NS

Table E.2-5
Target Organs
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Target Organs	
	Organ	Inhalation
1,1,1,2-Tetrachloroethane	liver, kidney	NA
1,1,2,2-Tetrachloroethane	respiratory	NA
1,1,1-Trichloroethane	NA	NA
1,1,2-Trichloroethane	blood	NA
1,2,3-Trichlorobenzene	NA	NA
1,2,3-Trichloropropane	WB, liver, kidney, blood	NA
1,2,4-Trichlorobenzene	adrenal, brain	liver
1,2,4-Trimethylbenzene	NA	lung
1,3,5-Trimethylbenzene	NA	NA
Trichloroethylene	NA	NA
Vinyl chloride	liver	liver
m,p-Xylene	CNS, WB	CNS
o-Xylene	CNS, WB	CNS
Xylenes	CNS, WB	CNS
Semi Volatile Organic Compounds		
4-Aminobiphenyl	NA	NA
Aniline	NA	spleen
Benzidine	brain, liver	NA
Benzoic acid	NR	NA
Benzyl alcohol	forestomach	NA
Benzyl butyl phthalate	liver	NA
Bis(2-ethylhexyl)phthalate	liver	NA
Carbazole	NA	NA
p-Chloroaniline	spleen	NA
4-Chloro-3-methylphenol	NA	NA
Dichlorvos (DDVP)	CNS	CNS
3,3'-Dichlorobenzidine	NA	NA
2,4-Dichlorophenol	immune system	NA
2,6-Dichlorophenol	liver, blood, hair	NA
Diethyl phthalate	WB, organs	NA
2,4-Dimethylphenol	NS, blood	NA
2,4-Dinitrophenol	eyes	NA
2,4-Dinitrotoluene	CNS, blood	NA
a,a-Dimethylphenethylamine	NA	NA
Dimethyl phthalate	kidney	NA
Di-n-butyl phthalate	WB	NA
m-Dinitrobenzene	spleen	NA
Di-n-octyl phthalate	liver	NA
Diphenylamine	WB, liver, kidney	NA
Diphenylhydrazine	NA	NA
Ethyl methanesulfonate	NA	NA
Hexachlorobenzene	liver	NA
Hexachlorocyclopentadiene	stomach	nasal
Hexachloroethane	kidney	NA
2-Methyl-4,6-dinitrophenol	NA	NA
Methyl methanesulfonate	NA	NA
2-Methylphenol	NS, WB	NA
1-Naphthylamine	NA	NA
2-Naphthylamine	NA	NA
2-Nitroaniline	NA	NA
3-Nitroaniline	NA	NA

Table E.2-5
Target Organs
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Target Organs	
	Organ	Inhalation
2-Nitrophenol	NA	NA
4-Nitrophenol	NA	NA
n-Nitrosodi-n-propylamine	NA	NA
n-Nitrosodiphenylamine	NA	NA
n-Nitrosodiphenylamine & diphenylamine	–	–
n-Nitrosopiperidine	NA	NA
Pentachlorobenzene	liver, kidney	NA
Pentachlorophenol	liver, kidney	NA
Phenacetin	NA	NA
Phenol	fetus	NA
Pyridine	liver	NA
1,2,4,5-Tetrachlorobenzene	kidney	NA
2,4,5-Trichlorophenol	liver, kidney	NA
2,4,6-Trichlorophenol	NA	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	kidney	NA
1,3,5-Trinitrobenzene	spleen	NA
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	liver	NA
Acenaphthylene	liver	NA
Anthracene	NR	NA
Benzo(a)anthracene	NA	NA
Benzo(a)pyrene	NA	NA
Benzo(b)fluoranthene	NA	NA
Benzo(g,h,i)perylene	kidney	NA
Benzo(k)fluoranthene	NA	NA
1-Chloronaphthalene	NA	NA
2-Chloronaphthalene	liver	NA
Dibenz(a,h)anthracene	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA
Fluoranthene	liver, kidney, blood	NA
Fluorene	RBCs	NA
Indeno(1,2,3-cd)pyrene	NA	NA
1-Methylnaphthalene	NA	NA
2-Methylnaphthalene	lungs	NA
Naphthalene	WB	nasal
Phenanthrene	NR	NA
Pyrene	kidney	NA
Herbicides		
2,4-D	blood, liver, kidney	NA
2,4-DB	WB (hemorrage)	NA
2,4,5-T	liver,kidney	NA
2,4,5-TP (Silvex)	liver	NA
Pesticides		
Aldrin	liver	NA
Basudin, neocidol	NS	NA
beta-BHC	NA	NA
Chlordane	liver	liver
4,4-DDD	NA	NA
4,4-DDE	NA	NA
4,4-DDT	liver	NA
delta-BHC	NA	NA

Table E.2-5
Target Organs
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Target Organs	
	Organ	**Inhalation**
Dieldrin	liver	NA
Endosulfan II	WB, kidney, blood vessels	NA
Endrin	liver, CNS	NA
Endrin aldehyde	liver, CNS	NA
gamma-BHC	liver, kidney	NA
Heptachlor	liver	NA
Heptachlor epoxide	liver	NA
Pentachloronitrobenzene	liver	NA
Total Petroleum Hydrocarbons (TPH)		
>C10-C28	NA	NA
>C28-C35	NA	NA
Diesel (c12-c24)	NA	NA
DRO	NA	NA
GRO	NA	NA
JP-4	NA	NA
JP-8	NA	NA
Motor oil (c24-c40)	NA	NA
Petroleum hydrocarbons	NA	NA
TPH	NA	NA
TPRH	NA	NA
Polychlorinated Biphenyls		
Aroclor 1254	eye, nails, immune system	NA
Aroclor 1260	NA	NA
Explosives		
2-Amino-4,6-dinitrotoluene	liver, blood	NA
4-Amino-2,6-dinitrotoluene	liver, blood	NA
2,6-Dinitrotoluene	CNS	NA
2-Nitrotoluene	NA	NA
3-Nitrotoluene	NA	NA
4-Nitrotoluene	NA	NA
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	liver	NA
RDX	prostate	NA
Tetryl	liver	NA
2,4,6-Trinitrotoluene	liver	NA
Inorganics		
Aluminum	developmental NS	NA
Antimony	WB, blood	NA
Arsenic	skin, vascular	NA
Barium	kidney	fetus
Beryllium	intestine	lung
Boron	fetus	respiratory
Cadmium	kidney	NA
Calcium metal	NA	NA
Chromium	NA	NA
Chromium (Hexavalent)	NR	lung
Cobalt	skin	NA
Copper	GI	NA
Cyanide	WB, thyroid, NS	NA
Cyanide (Total)	WB, thyroid, NS	NA
Fluoride	dental	NA
Iron	blood, liver, GI	NA

Table E.2-5
Target Organs
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Target Organs	
	Organ	**Inhalation**
Lead	NA	NA
Magnesium	NA	NA
Manganese	CNS	CNS
Mercury	NA	NA
Molybdenum	kidney, joints, blood	NA
Nickel	WB	NA
Nitrate	blood	NA
Nitrate + Nitrite	blood	NA
Phosphorus	WB	NA
Potassium	NA	NA
Selenium	WB	NA
Silver	skin	NA
Sodium	NA	NA
Sulfide	NA	NA
Thallium	NA	NA
Tin	liver, kidney	NA
Titanium	NA	NA
Vanadium	liver	NA
Zinc	blood	NA
Other		
Chloride	NA	NA

Notes:
– = Not applicable.
NA = Not available.
NR = Not reported.

[a] Only constituents detected at least once in soil or groundwater are presented.

Table E.2-6
Noncarcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral RfD (mg/kg/day) [a] Chronic	[ref]	Adjustment Factor [b]	Dermal RfD (mg/kg/day) [a,b] Chronic	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
Volatile Organic Compounds						
Acetone	9.0E-01	I	1	9.0E-01	liver, kidney	medium/1000
Benzene	4.0E-03	I	1	4.0E-03	blood	medium/100
Bromomethane	1.4E-03	I	1	1.4E-03	forestomach	medium/1000
2-Butanone	6.0E-01	I	1	6.0E-01	fetus	low/3000
n-Butylbenzene	1.0E-01	I	1	1.0E-01	liver, kidney	high/1000
sec-Butylbenzene	1.0E-01	I	1	1.0E-01	kidney	low/1000
Carbon disulfide	1.0E-01	I	1	1.0E-01	fetus	medium/100
Carbon tetrachloride	4.0E-03	I	1	4.0E-03	liver	medium/1000
CFC-11	3.0E-01	I	1	3.0E-01	WB	medium/1000
CFC-12	2.0E-01	I	1	2.0E-01	WB	high/100
Chlorinated fluorocarbon (Freon 113)	3.0E+01	I	1	3.0E+01	CNS	low/10
Chlorobenzene	2.0E-02	I	1	2.0E-02	liver	medium/1000
Chlorodibromomethane	2.0E-02	I	1	2.0E-02	liver	medium/1000
Chloroethane	NA		1	NA	NA	NA
Chloroform	1.0E-02	I	1	1.0E-02	liver	medium/1000
Chloromethane	NA		1	NA	NA	NA
2-Chlorophenol	5.0E-03	I	1	5.0E-03	reproduction	low/1000
Cymene	NA		1	NA	NA	NA
Dibenzofuran	4.0E-03	P	1	4.0E-03	NA	NA
1,3-Dichlorobenzene	3.0E-02	Ns	1	3.0E-02	NA	NA
1,4-Dichlorobenzene	7.0E-02	A	1	7.0E-02	NA	NA
1,1-Dichloroethane	2.0E-01	P	1	2.0E-01	NR	NA/1000
1,2-Dichloroethane	2.0E-02	P	1	2.0E-02	kidney	high/1000
1,1-Dichloroethylene	5.0E-02	I	1	5.0E-02	liver	medium/100
Dichloromethane	6.0E-02	I	1	6.0E-02	liver	medium/100
Ethanol	NA		1	NA	NA	NA
Ethylbenzene	1.0E-01	I	1	1.0E-01	liver, kidney	high/1000
Isopropylbenzene	1.0E-01	I	1	1.0E-01	kidney	low/1000
Toluene	8.0E-02	I	1	8.0E-02	liver, kidney	medium/3000
Methyl tert-Butyl Ether (MTBE)	NA		1	NA	NA	NA
Nitrobenzene	2.0E-03	I	1	2.0E-03	blood, adrenal, liver, kidney	low/10,000
n-Propylbenzene	1.0E-01	Ps	1	1.0E-01	NA	NA
Styrene (monomer)	2.0E-01	I	1	2.0E-01	liver, RBCs	medium/1000
Tetrachloroethene	1.0E-02	I	1	1.0E-02	liver	medium/1000
1,1,2,2-Tetrachloroethane	4.0E-03	P	1	4.0E-03	respiratory	NA
1,1,1-Trichloroethane	2.0E+00	I	1	2.0E+00	NA	NA
1,2,3-Trichlorobenzene	8.0E-04	P	1	8.0E-04	NA	low/10000
1,2,3-Trichloropropane	4.0E-03	I	1	4.0E-03	WB, liver, kidney, blood	low/1000
1,2,4-Trichlorobenzene	1.0E-02	I	1	1.0E-02	adrenal, brain	medium/1000

Table E.2-6
Noncarcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral RfD (mg/kg/day) [a] Chronic	[ref]	Adjustment Factor [b]	Dermal RfD (mg/kg/day) [a,b] Chronic	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
1,2,4-Trimethylbenzene	NA		1	NA	NA	NA
1,3,5-Trimethylbenzene	1.0E-02	P	1	1.0E-02	NA	NA
Trichloroethylene	NA		1	NA	NA	NA
Vinyl chloride	3.0E-03	I	1	3.0E-03	liver	medium/30
m,p-Xylene	2.0E-01	I	1	2.0E-01	CNS, WB	medium/100
o-Xylene	2.0E-01	I	1	2.0E-01	CNS, WB	medium/100
Xylenes	2.0E-01	I	1	2.0E-01	CNS, WB	medium/100
Semi Volatile Organic Compounds						
Benzidine	3.0E-03	I	1	3.0E-03	brain, liver	medium/1000
Benzoic acid	4.0E+00	I	1	4.0E+00	NR	medium/1
Benzyl butyl phthalate	2.0E-01	I	1	2.0E-01	liver	low/1000
Bis(2-ethylhexyl)phthalate	2.0E-02	I	1	2.0E-02	liver	medium/1000
Carbazole	NA		1	NA	NA	NA
p-Chloroaniline	4.0E-03	I	1	4.0E-03	spleen	low/3000
4-Chloro-3-methylphenol	1.0E-01	P	1	1.0E-01	NA	NA
Dichlorvos (DDVP)	5.0E-04	I	1	5.0E-04	CNS	NA
Diethyl phthalate	8.0E-01	I	1	8.0E-01	WB, organs	low/1000
2,4-Dinitrotoluene	2.0E-03	I	1	2.0E-03	CNS, blood	high/100
a,a-Dimethylphenethylamine	NA		1	NA	NA	NA
Dimethyl phthalate	1.0E+01	H	1	1.0E+01	kidney	NA
Di-n-butyl phthalate	1.0E-01	I	1	1.0E-01	WB	low/1000
m-Dinitrobenzene	1.0E-04	I	1	1.0E-04	spleen	low/3000
Di-n-octyl phthalate	4.0E-02	Ns	1	4.0E-02	liver	NA/1000
Diphenylamine	2.5E-02	I	1	2.5E-02	WB, liver, kidney	medium/100
Ethyl methanesulfonate	NA		1	NA	NA	NA
Methanamine, n-methyl-n-nitroso	8.0E-06	P	1	8.0E-06	NA	NA
2-Nitrophenol	NA		1	NA	NA	NA
4-Nitrophenol	NA		1	NA	NA	NA
n-Nitrosodi-n-propylamine	NA		1	NA	NA	NA
n-Nitrosodiphenylamine	NA		1	NA	NA	NA
n-Nitrosodiphenylamine & diphenylamine	NA		1	NA	NA	NA
Pentachlorophenol	3.0E-02	I	1	3.0E-02	liver, kidney	medium/100
Phenol	3.0E-01	I	1	3.0E-01	fetus	medium/300
1,2,4,5-Tetrachlorobenzene	3.0E-04	I	1	3.0E-04	kidney	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	2.0E-01	I	1	2.0E-01	kidney	low/1000
1,3,5-Trinitrobenzene	3.0E-02	I	1	3.0E-02	spleen	medium/100
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	6.0E-02	I	1	6.0E-02	liver	low/3000
Anthracene	3.0E-01	I	1	3.0E-01	NR	low/3000
Benzo(a)anthracene	NA		1	NA	NA	NA

Table E.2-6
Noncarcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral RfD (mg/kg/day) [a] Chronic	[ref]	Adjustment Factor [b]	Dermal RfD (mg/kg/day) [a,b] Chronic	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
Benzo(a)pyrene	NA		1	NA	NA	NA
Benzo(b)fluoranthene	NA		1	NA	NA	NA
Benzo(g,h,i)perylene	3.0E-02	Is	1	3.0E-02	kidney	NA
Benzo(k)fluoranthene	NA		1	NA	NA	NA
1,2-Benzphenanthracene	NA		1	NA	NA	NA
Dibenz(a,h)anthracene	NA		1	NA	NA	NA
Fluoranthene	4.0E-02	I	1	4.0E-02	liver, kidney, blood	low/3000
Fluorene	4.0E-02	I	1	4.0E-02	RBCs	low/3000
Indeno(1,2,3-cd)pyrene	NA		1	NA	NA	NA
1-Methylnaphthalene	7.0E-02	A	1	7.0E-02	NA	NA
2-Methylnaphthalene	4.0E-03	I	1	4.0E-03	lungs	low/1000
Naphthalene	2.0E-02	I	1	2.0E-02	WB	low/3000
Phenanthrene	3.0E-01	Is	1	3.0E-01	NR	NA
Pyrene	3.0E-02	I	1	3.0E-02	kidney	low/3000
Herbicides						
2,4-D	1.0E-02	I	1	1.0E-02	blood, liver, kidney	medium/100
2,4-DB	8.0E-03	I	1	8.0E-03	WB (hemorrage)	NA
2,4,5-T	1.0E-02	I	1	1.0E-02	liver,kidney	NA
2,4,5-TP (Silvex)	8.0E-03	I	1	8.0E-03	liver	NA
Pesticides						
Aldrin	3.0E-05	I	1	3.0E-05	liver	medium/1000
Basudin, neocidol	7.0E-04	A	1	7.0E-04	NS	NA
beta-BHC	NA		1	NA	NA	NA
Chlordane	5.0E-04	I	1	5.0E-04	liver	medium/300
4,4-DDD	NA		1	NA	NA	NA
4,4-DDE	NA		1	NA	NA	NA
4,4-DDT	5.0E-04	I	1	5.0E-04	liver	medium/100
delta-BHC	3.0E-04	Is	1	3.0E-04	NA	NA
Dieldrin	5.0E-05	I	1	5.0E-05	liver	medium/100
Endosulfan II	6.0E-03	Is	1	6.0E-03	WB, kidney, blood vessels	medium /100
Endrin	3.0E-04	I	1	3.0E-04	liver, CNS	medium/100
Endrin aldehyde	3.0E-04	Is	1	3.0E-04	liver, CNS	medium/100
gamma-BHC	3.0E-04	I	1	3.0E-04	liver, kidney	medium/1000
Heptachlor	5.0E-04	I	1	5.0E-04	liver	low/100
Heptachlor epoxide	1.3E-05	I	1	1.3E-05	liver	low/1000
Polychlorinated Biphenyls						
Aroclor 1254	2.0E-05	I	1	2.0E-05	eye, nails, immune system	medium/300
Aroclor 1260	NA		1	NA	NA	NA
Explosives						
2-Amino-4,6-dinitrotoluene	2.0E-03	S	1	2.0E-03	liver, blood	NA

Table E.2-6
Noncarcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral RfD (mg/kg/day) [a] Chronic	[ref]	Adjustment Factor [b]	Dermal RfD (mg/kg/day) [a,b] Chronic	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
4-Amino-2,6-dinitrotoluene	2.0E-03	S	1	2.0E-03	liver, blood	NA
2,6-Dinitrotoluene	1.0E-03	P	1	1.0E-03	CNS	NA/3000
2-Nitrotoluene	9.0E-04	P	1	9.0E-04	NA	NA
3-Nitrotoluene	1.0E-04	X	1	1.0E-04	NA	NA
4-Nitrotoluene	4.0E-03	P	1	4.0E-03	NA	NA
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	5.0E-02	I	1	5.0E-02	liver	NA
RDX	3.0E-03	I	1	3.0E-03	prostate	high/100
Tetryl	1.0E-03	P	1	1.0E-03	liver	NA/10,000
2,4,6-Trinitrotoluene	5.0E-04	I	1	5.0E-04	liver	medium/1000
Inorganics						
Aluminum	1.0E+00	P	1	1.0E+00	developmental NS	NA
Antimony	4.0E-04	I	0.15	6.0E-05	WB, blood	low/1000
Arsenic	3.0E-04	I	1	3.0E-04	skin, vascular	medium/3
Barium	2.0E-01	I	0.07	1.4E-02	kidney	medium/300
Beryllium	2.0E-03	I	0.007	1.4E-05	intestine	low-medium/300
Boron	2.0E-01	I	1	2.0E-01	fetus	high/66
Cadmium	5E-04 / 1E-03	c	0.025	media specific	kidney	NA
Chloride	NA		1	NA	NA	NA
Chromium	NA		0.013	NA	NA	NA
Chromium (Hexavalent)	3.0E-03	I	1	3.0E-03	NR	low/300
Cobalt	3.0E-04	P	1	3.0E-04	skin	NA
Copper	4.0E-02	H	1	4.0E-02	GI	NA
Cyanide (Total)	2.0E-02	I	1	2.0E-02	NA	NA
Fluoride	6.0E-02	I	1	6.0E-02	dental	high/1
Iron	7.0E-01	P	1	7.0E-01	blood, liver, GI	NA
Lead	NA		1	NA	NA	NA
Manganese	1.4E-01 / 2.4E-02	I	0.04	media specific	CNS	medium/1
Mercury	3.0E-04	Is	0.07	2.1E-05	NA	NA
Molybdenum	5.0E-03	I	1	5.0E-03	kidney, joints, blood	medium/30
Nickel	2.0E-02	I	0.04	8.0E-04	WB	medium/300
Nitrate	1.6E+00	I	1	1.6E+00	blood	high/1
Nitrite	1.0E-01	I	1	1.0E-01	blood	high/10
Nitrate + Nitrite	NA		1	NA	NA	NA
Phosphorus	2.0E-05	I	1	2.0E-05	WB	NA
Selenium	5.0E-03	I	1	5.0E-03	WB	high/3
Silver	5.0E-03	I	0.04	2.0E-04	skin	low/3
Thallium	NA		1	NA	NA	NA
Tin	6.0E-01	H	1	6.0E-01	liver, kidney	NA/100
Titanium	4.0E+00	N	1	4.0E+00	NA	NA
Vanadium	5.0E-03	I	0.026	1.3E-04	liver	low/100

Table E.2-6
Noncarcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral RfD (mg/kg/day) [a] Chronic	[ref]	Adjustment Factor [b]	Dermal RfD (mg/kg/day) [a,b] Chronic	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
Zinc	3.0E-01	I	1	3.0E-01	blood	medium/3
Radiometrics						
Radium 228	NA		1	NA	NA	NA

References [ref]:

H	USEPA, Health Effects Summary Table (HEAST; USEPA, 1997b).
I	USEPA, Integrated Risk Information System (IRIS; USEPA, 2009b).
N	Provisional Peer Reviewed Toxicity Values (PPRTV) by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Region 3 (USEPA, 2009a).
P	Provisional Peer Reviewed Toxicity Values (PPRTV) by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).
S	Value as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).
X	Provisional Peer Reviewed Toxicity Values (PPRTV) Appendix by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).
–	Not applicable.
c	The chronic value is used if available.
CNS	Central nervous system.
GI	Gastrointestinal tract.
mg/kg/day	Milligrams per kilogram per day.
NA	Not available.
NR	None reported.
RfD	Reference Dose.
RBCs	Red blood cells.
NS	Nervous system.
s	Value is based on use of a surrogate compound, as indicated.
WB	Whole body (includes increased mortality and changes to body weight).

[a]	Toxicity values were obtained from sources referenced above in the following order of priority: *I, P, X, H, N, S.*
[b]	The oral-to-dermal adjustment factor (oral absorption efficiency) as used to calculate the dermal RfD values, USEPA, 2004a. RfD (dermal) = RfD (oral) × Adjustment Factor (oral absorption efficiency).

Table E.2-7
Noncarcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation RfC (mg/m^3) [a] Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
Volatile Organic Compounds				
Acetone	3.1E+01	A	NA	NA
Benzene	3.0E-02	I	blood	medium/100
Bromomethane	5.0E-03	I	nasal	high/100
2-Butanone	5.0E+00	I	developmental	medium/300
n-Butylbenzene	1.0E+00	I	developmental	medium/100
sec-Butylbenzene	4.0E-01	I	kidney, adrenal	medium/1000
Carbon disulfide	7.0E-01	I	PNS	medium/30
Carbon tetrachloride	1.0E-01	I	liver	NA/30
CFC-11	7.0E-01	H	lung	NA/10000
CFC-12	2.0E-01	H	liver	NA/10,000
Chlorinated fluorocarbon (Freon 113)	3.0E+01	H	WB	NA/100
Chlorobenzene	5.0E-02	P	NA	NA
Chlorodibromomethane	NA		NA	NA
Chloroethane	1.0E+01	I	fetus	medium/300
Chloroform	9.8E-02	A	liver, kidney, CNS	low-med/100
Chloromethane	9.0E-02	I	brain	medium/1000
2-Chlorophenol	NA		NA	NA
Cymene	NA		NA	NA
Dibenzofuran	NA		NA	NA
1,3-Dichlorobenzene	NA		NA	NA
1,4-Dichlorobenzene	8.0E-01	I	liver	medium/100
1,1-Dichloroethane	NA		NA	NA
1,2-Dichloroethane	2.4E+00	A	liver	low/3000
1,1-Dichloroethylene	2.0E-01	I	liver	NA/90
Dichloromethane	1.0E+00	A	liver	NA/30
Ethanol	NA		NA	NA
Ethylbenzene	1.0E+00	I	developmental	medium/100
Isopropylbenzene	4.0E-01	I	kidney, adrenal	medium/1000
Toluene	5.0E+00	I	CNS	medium/300
Methyl tert-Butyl Ether (MTBE)	3.0E+00	I	liver, kidney	medium/100
Nitrobenzene	9.0E-03	I	blood, adrenal, liver, kidney	NA/10,000
n-Propylbenzene	1.0E+00	Ps	NA	NA
Styrene (monomer)	1.0E+00	I	CNS	medium/30
Tetrachloroethene	2.7E-01	A	NS	NA

Table E.2-7
Noncarcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation RfC (mg/m^3) [a] Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
1,1,2,2-Tetrachloroethane	NA		NA	NA
1,1,1-Trichloroethane	5.0E+00	I	NA	NA
1,2,3-Trichlorobenzene	NA		NA	NA
1,2,3-Trichloropropane	3.0E-04	I	NA	NA
1,2,4-Trichlorobenzene	2.0E-03	P	liver	medium/3000
1,2,4-Trimethylbenzene	7.0E-03	P	lung	low/3000
1,3,5-Trimethylbenzene	NA		NA	NA
Trichloroethylene	NA		NA	NA
Vinyl chloride	1.0E-01	I	liver	medium/30
m,p-Xylene	7.0E-01	C	CNS	NA
o-Xylene	7.0E-01	C	CNS	NA
Xylenes	1.0E-01	I	CNS	medium/300
Semi Volatile Organic Compounds				
Benzidine	NA		NA	NA
Benzoic acid	NA		NA	NA
Benzyl butyl phthalate	NA		NA	NA
Bis(2-ethylhexyl)phthalate	NA		NA	NA
Carbazole	NA		NA	NA
p-Chloroaniline	NA		NA	NA
4-Chloro-3-methylphenol	NA		NA	NA
Dichlorvos (DDVP)	5.0E-04	I	CNS	NA
Diethyl phthalate	NA		NA	NA
2,4-Dinitrotoluene	NA		NA	NA
a,a-Dimethylphenethylamine	NA		NA	NA
Dimethyl phthalate	NA		NA	NA
Di-n-butyl phthalate	NA		NA	NA
m-Dinitrobenzene	NA		NA	NA
Di-n-octyl phthalate	NA		NA	NA
Diphenylamine	NA		NA	NA
Ethyl methanesulfonate	NA		NA	NA
Methanamine, n-methyl-n-nitroso	4.0E-05	X	NA	NA
2-Nitrophenol	NA		NA	NA
4-Nitrophenol	NA		NA	NA
n-Nitrosodi-n-propylamine	NA		NA	NA
n-Nitrosodiphenylamine	NA		NA	NA

Table E.2-7
Noncarcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation RfC (mg/m^3) [a] Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
n-Nitrosodiphenylamine & diphenylamine	NA		NA	NA
Pentachlorophenol	NA		NA	NA
Phenol	2.0E-01	C	NA	NA
1,2,4,5-Tetrachlorobenzene	NA		NA	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	2.0E+00	C	NA	NA
1,3,5-Trinitrobenzene	NA		NA	NA
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	NA		NA	NA
Anthracene	NA		NA	NA
Benzo(a)anthracene	NA		NA	NA
Benzo(a)pyrene	NA		NA	NA
Benzo(b)fluoranthene	NA		NA	NA
Benzo(g,h,i)perylene	NA		NA	NA
Benzo(k)fluoranthene	NA		NA	NA
1,2-Benzphenanthracene	NA		NA	NA
Dibenz(a,h)anthracene	NA		NA	NA
Fluoranthene	NA		NA	NA
Fluorene	NA		NA	NA
Indeno(1,2,3-cd)pyrene	NA		NA	NA
1-Methylnaphthalene	NA		NA	NA
2-Methylnaphthalene	NA		NA	NA
Naphthalene	3.0E-03	I	nasal	medium/3000
Phenanthrene	NA		NA	NA
Pyrene	NA		NA	NA
Herbicides				
2,4-D	NA		NA	NA
2,4-DB	NA		NA	NA
2,4,5-T	NA		NA	NA
2,4,5-TP (Silvex)	NA		NA	NA
Pesticides				
Aldrin	NA		NA	NA
Basudin, neocidol	NA		NA	NA
beta-BHC	NA		NA	NA
Chlordane	7.0E-04	I	liver	low/1000
4,4-DDD	NA		NA	NA

Table E.2-7
Noncarcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation RfC (mg/m^3) [a] Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
4,4-DDE	NA		NA	NA
4,4-DDT	NA		NA	NA
delta-BHC	NA		NA	NA
Dieldrin	NA		NA	NA
Endosulfan II	NA		NA	NA
Endrin	NA		NA	NA
Endrin aldehyde	NA		NA	NA
gamma-BHC	NA		NA	NA
Heptachlor	NA		NA	NA
Heptachlor epoxide	NA		NA	NA
Polychlorinated Biphenyls				
Aroclor 1254	NA		NA	NA
Aroclor 1260	NA		NA	NA
Explosives				
2-Amino-4,6-dinitrotoluene	NA		NA	NA
4-Amino-2,6-dinitrotoluene	NA		NA	NA
2,6-Dinitrotoluene	NA		NA	NA
2-Nitrotoluene	NA		NA	NA
3-Nitrotoluene	NA		NA	NA
4-Nitrotoluene	NA		NA	NA
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	NA		NA	NA
RDX	NA		NA	NA
Tetryl	NA		NA	NA
2,4,6-Trinitrotoluene	NA		NA	NA
Inorganics				
Aluminum	5.0E-03	P	NA	NA
Antimony	NA		NA	NA
Arsenic	1.5E-05	C	NA	NA
Barium	5.0E-04	H	fetus	NA/1000
Beryllium	2.0E-05	I	lung	medium/10
Boron	2.0E-02	H	respiratory	NA/100
Cadmium	1.0E-05	A	NA	NA
Chloride	NA		NA	NA
Chromium	NA		NA	NA
Chromium (Hexavalent)	1.0E-04	I	lung	medium/300

Table E.2-7
Noncarcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation RfC (mg/m^3) [a] Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor
Cobalt	6.0E-06	P	NA	NA
Copper	NA		NA	NA
Cyanide (Total)	NA		NA	NA
Fluoride	NA		NA	NA
Iron	NA		NA	NA
Lead	NA		NA	NA
Manganese	5.0E-05	I	CNS	medium/1000
Mercury	NA		NA	NA
Molybdenum	NA		NA	NA
Nickel	9.0E-05	A	NA	NA
Nitrate	NA		NA	NA
Nitrite	NA		NA	NA
Nitrate + Nitrite	NA		NA	NA
Phosphorus	NA		NA	NA
Selenium	2.0E-02	C	NA	NA
Silver	NA		NA	NA
Thallium	NA		NA	NA
Tin	NA		NA	NA
Titanium	3.0E-02	N	NA	NA
Vanadium	NA		NA	NA
Zinc	NA		NA	NA
Radiometrics				
Radium 228	NA		NA	NA

References [ref]:

A Agency for Toxic Substances Disease Registry (ATDSR) as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).

C CalEPA, Toxicity Criteria database (CalEPA, 2009b).

H USEPA, Health Effects Summary Table (HEAST; USEPA, 1997b).

I USEPA, Integrated Risk Information System (IRIS; USEPA, 2009b).

N Provisional Peer Reviewed Toxicity Values (PPRTV) by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Region 3 (USEPA, 2006).

P Provisional Peer Reviewed Toxicity Values (PPRTV) by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).

X Provisional Peer Reviewed Toxicity Values (PPRTV) Appendix by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).

Table E.2-7
Noncarcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation RfC (mg/m^3) [a] Chronic	[ref]	Target Site/ Critical Effect	Confidence Level/ Uncertainty Factor

–	Not applicable.
CNS	Central nervous system.
mg/m^3	Milligrams per cubic meter.
NA	Not available.
NS	Nervous system.
PNS	Peripheral nervous system.
RfC	Reference Concentration.
RfD	Reference Dose.
WB	Whole body (includes increased mortality and changes to body weight).
[a]	Toxicity values were obtained from sources referenced above in the following order of priority: *I, P, X, C, H, A, N.*

Table E.2-8
Carcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral CSF [a] $(mg/kg/day)^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] $(mg/kg/day)^{-1}$	Tumor Site	Weight of Evidence Classification [c]
Volatile Organic Compounds						
Acetone	NA		1	NA	–	D
Benzene	5.5E-02	I	1	5.5E-02	leukemia	A
Bromomethane	NA		1	NA	–	D
2-Butanone	NA		1	NA	–	D
n-Butylbenzene	NA		1	NA	–	NA
sec-Butylbenzene	NA		1	NA	–	NA
Carbon disulfide	NA		1	NA	–	NA
Carbon tetrachloride	7.0E-02	I	1	7.0E-02	liver	B2
CFC-11	NA		1	NA	–	NA
CFC-12	NA		1	NA	–	NA
Chlorinated fluorocarbon (Freon 113)	NA		1	NA	–	NA
Chlorobenzene	NA		1	NA	–	D
Chlorodibromomethane	8.4E-02	I	1	8.4E-02	liver	C
Chloroethane	NA		1	NA	–	C
Chloroform	NA		1	NA	NA	B2
Chloromethane	NA		1	NA	NA	D
2-Chlorophenol	NA		1	NA	–	NA
Cymene	NA		1	NA	–	NA
Dibenzofuran	NA		1	NA	–	D
1,3-Dichlorobenzene	NA		1	NA	–	D
1,4-Dichlorobenzene	5.4E-03	C	1	5.4E-03	liver	C
1,1-Dichloroethane	5.7E-03	C	1	5.7E-03	NA	C
1,2-Dichloroethane	9.1E-02	I	1	9.1E-02	circulatory system	B2
1,1-Dichloroethylene	NA		1	NA	–	C
Dichloromethane	7.5E-03	I	1	7.5E-03	liver	B2
Ethanol	NA		1	NA	–	NA
Ethylbenzene	NA		1	NA	–	D
Isopropylbenzene	NA		1	NA	–	D
Toluene	NA		1	NA	–	D
Methyl tert-Butyl Ether (MTBE)	1.8E-03	C	1	1.8E-03	–	NA
Nitrobenzene	NA		1	NA	–	D
n-Propylbenzene	NA		1	NA	–	NA
Styrene (monomer)	NA		1	NA	–	B2
Tetrachloroethene	5.4E-01	C	1	5.4E-01	liver, kidney	B2
1,1,2,2-Tetrachloroethane	2.0E-01	I	1	2.0E-01	liver	C
1,1,1-Trichloroethane	NA		1	NA	–	D
1,2,3-Trichlorobenzene	NA		1	NA	–	NA
1,2,3-Trichloropropane	3.0E+01	I	1	3.0E+01	multiple sites	B2
1,2,4-Trichlorobenzene	2.9E-02	P	1	2.9E-02	–	D
1,2,4-Trimethylbenzene	NA		1	NA	–	NA
1,3,5-Trimethylbenzene	NA		1	NA	–	NA

Table E.2-8
Carcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral CSF [a] $(mg/kg/day)^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] $(mg/kg/day)^{-1}$	Tumor Site	Weight of Evidence Classification [c]
Trichloroethylene	5.9E-03	C	1	5.9E-03	multiple sites	C-B2
Vinyl chloride	7.2E-01	I	1	7.2E-01	liver	A
m,p-Xylene	NA		1	NA	–	D
o-Xylene	NA		1	NA	–	D
Xylenes	NA		1	NA	–	D
Semi Volatile Organic Compounds						
Benzidine	2.3E+02	I	1	2.3E+02	bladder	A
Benzoic acid	NA		1	NA	–	D
Benzyl butyl phthalate	1.9E-03	P	1	1.9E-03	NA	C
Bis(2-ethylhexyl)phthalate	1.4E-02	I	1	1.4E-02	liver	B2
Carbazole	2.0E-02		1	2.0E-02	liver	B2
p-Chloroaniline	2.0E-01	P	1	2.0E-01	–	NA
4-Chloro-3-methylphenol	NA		1	NA	–	NA
Dichlorvos (DDVP)	2.9E-01	I	1	2.9E-01	NA	NA
Diethyl phthalate	NA		1	NA	–	D
2,4-Dinitrotoluene	3.1E-01	C	1	3.1E-01	–	NA
a,a-Dimethylphenethylamine	NA		1	NA	–	NA
Dimethyl phthalate	NA		1	NA	–	D
Di-n-butyl phthalate	NA		1	NA	–	D
m-Dinitrobenzene	NA		1	NA	–	D
Di-n-octyl phthalate	NA		1	NA	–	D
Diphenylamine	NA		1	NA	–	NA
Ethyl methanesulfonate	NA		1	NA	–	NA
Methanamine, n-methyl-n-nitroso	5.1E+01	I	1	5.1E+01	multiple	B2
2-Nitrophenol	NA		1	NA	–	NA
4-Nitrophenol	NA		1	NA	–	NA
n-Nitrosodi-n-propylamine	7.0E+00	I	1	7.0E+00	multiple	B2
n-Nitrosodiphenylamine	4.9E-03	I	1	4.9E-03	bladder	B2
n-Nitrosodiphenylamine & diphenylamine	NA		1	NA	–	NA
Pentachlorophenol	1.2E-01	I	1	1.2E-01	liver, adrenal	B2
Phenol	NA		1	NA	–	D
1,2,4,5-Tetrachlorobenzene	NA		1	NA	–	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	9.5E-04	I	1	9.5E-04	kidney	C
1,3,5-Trinitrobenzene	NA		1	NA	–	NA
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	NA		1	NA	–	NA
Anthracene	NA		1	NA	–	D
Benzo(a)anthracene	7.3E-01	E	1	7.3E-01	stomach	B2
Benzo(a)pyrene	7.3E+00	I	1	7.3E+00	stomach	B2
Benzo(b)fluoranthene	7.3E-01	E	1	7.3E-01	stomach	B2
Benzo(g,h,i)perylene	NA		1	NA	–	D
Benzo(k)fluoranthene	7.3E-02	E	1	7.3E-02	stomach	B2

Table E.2-8
Carcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral CSF [a] (mg/kg/day)$^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] (mg/kg/day)$^{-1}$	Tumor Site	Weight of Evidence Classification [c]
1,2-Benzphenanthracene	7.3E-03	E	1	7.3E-03	stomach	B2
Dibenz(a,h)anthracene	7.3E+00	E	1	7.3E+00	stomach	B2
Fluoranthene	NA		1	NA	–	D
Fluorene	NA		1	NA	–	D
Indeno(1,2,3-cd)pyrene	7.3E-01	E	1	7.3E-01	stomach	B2
1-Methylnaphthalene	2.9E-02	P	1	2.9E-02	–	NA
2-Methylnaphthalene	NA		1	NA	–	NA
Naphthalene			1		–	C
Phenanthrene	NA		1	NA	–	D
Pyrene	NA		1	NA	–	D
Herbicides						
2,4-D	NA		1	NA	–	NA
2,4-DB	NA		1	NA	–	NA
2,4,5-T	NA		1	NA	–	NA
2,4,5-TP (Silvex)	NA		1	NA	–	D
Pesticides						
Aldrin	1.7E+01	I	1	1.7E+01	liver	B2
Basudin, neocidol	NA		1	NA	–	NA
beta-BHC	1.8E+00	I	1	1.8E+00	liver	C
Chlordane	3.5E-01		1	3.5E-01	liver	B2
4,4-DDD	2.4E-01	I	1	2.4E-01	liver	B2
4,4-DDE	3.4E-01	I	1	3.4E-01	liver	B2
4,4-DDT	3.4E-01	I	1	3.4E-01	liver	B2
delta-BHC	NA		1	NA	–	D
Dieldrin	1.6E+01	I	1	1.6E+01	liver	B2
Endosulfan II	NA		1	NA	–	NA
Endrin	NA		1	NA	–	D
Endrin aldehyde	NA		1	NA	–	D
gamma-BHC	1.1E+00	C	1	1.1E+00	liver	B2-C
Heptachlor	4.5E+00	I	1	4.5E+00	liver	B2
Heptachlor epoxide	9.1E+00	I	1	9.1E+00	liver	B2
Polychlorinated Biphenyls						
Aroclor 1254	2.0E+00	I	1	2.0E+00	liver	B2
Aroclor 1260	2.0E+00	I	1	2.0E+00	liver	B2
Explosives						
2-Amino-4,6-dinitrotoluene	NA		1	NA	–	NA
4-Amino-2,6-dinitrotoluene	NA		1	NA	–	NA
2,6-Dinitrotoluene	NA		1	NA	–	NA
2-Nitrotoluene	2.2E-01	P	1	2.2E-01	NA	NA
3-Nitrotoluene	NA		1	NA	–	NA
4-Nitrotoluene	1.6E-02	P	1	1.6E-02	NA	NA
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	NA		1	NA	–	D

Table E.2-8
Carcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral CSF [a] $(mg/kg/day)^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] $(mg/kg/day)^{-1}$	Tumor Site	Weight of Evidence Classification [c]
RDX	1.1E-01	I	1	1.1E-01	liver	C
Tetryl	NA		1	NA	–	NA
2,4,6-Trinitrotoluene	3.0E-02	I	1	3.0E-02	bladder	C
Inorganics						
Aluminum	NA		1	NA	–	NA
Antimony	NA		0.15	NA	–	NA
Arsenic	1.5E+00	I	1	1.5E+00	skin	A
Barium	NA		0.07	NA	–	D
Beryllium	NA		0.007	NA	–	B1
Boron	NA		1	NA	–	NA
Cadmium	NA		0.025	NA	–	D/B1
Chloride	NA		1	NA	–	NA
Chromium	NA		0.013	NA	–	NA
Chromium (Hexavalent)	NA		1	NA	–	D/A
Cobalt	NA		1	NA	–	[see footnote]
Copper	NA		1	NA	–	D
Cyanide (Total)	NA		1	NA	–	D
Fluoride	NA		1	NA	–	NA
Iron	NA		1	NA	–	NA
Lead	NA		1	NA	–	B2
Manganese	NA		0.04	NA	–	D
Mercury	NA		0.07	NA	–	C
Molybdenum	NA		1	NA	–	NA
Nickel	NA		0.04	NA	–	NA
Nitrate	NA		1	NA	–	NA
Nitrite	NA		1	NA	–	NA
Nitrate + Nitrite	NA		1	NA	–	NA
Phosphorus	NA		1	NA	–	?
Selenium	NA		1	NA	–	D
Silver	NA		0.04	NA	–	D
Thallium	NA		1	NA	–	NA
Tin	NA		1	NA	–	NA
Titanium	NA		1	NA	–	NA
Vanadium	NA		0.026	NA	–	NA
Zinc	NA		1	NA	–	D
Radiometrics						
Radium 228	1.04E-09	F	1	1.0E-09	–	NA

Table E.2-8
Carcinogenic Toxicity Values for Oral and Dermal Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Oral CSF [a] $(mg/kg/day)^{-1}$	[ref]	Adjustment Factor [b]	Dermal CSF [b] $(mg/kg/day)^{-1}$	Tumor Site	Weight of Evidence Classification [c]

References [ref]:

C	CalEPA, Toxicity Criteria database (CalEPA, 2009b).
E	Environmental Criteria and Assessment Office as referenced in USEPA Regional Screening Level Table (USEPA, 2009a)
F	USEPA, Radionuclide Table (USEPA, 2001), Radionuclide Table.
H	USEPA, Health Effects Summary Table (HEAST; USEPA, 1997b).
I	USEPA, Integrated Risk Information System (IRIS; USEPA, 2009b).
P	Provisional Peer Reviewed Toxicity Values (PPRTV) by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Regional Screening Level Table (USPEA, 2009a).
–	Not applicable.
CSF	Cancer Slope Factor.
$(mg/kg/day)^{-1}$	Inverse milligrams per kilogram per day (risk per unit dose).
NA	Not available.
TEF	Toxic Equivalency Factor.

[a] Toxicity values were obtained from sources referenced above in the following order of priority: *I, P, C,H, E.*

[b] The oral-to-dermal adjustment factor (oral absorption efficiency) as used to calculate the dermal CSFd values (USEPA, 2004a).
CSF (dermal) = CSF (oral) / Adjustment Factor (oral absorption efficiency)

[c] USEPA cancer weight-of-evidence categories are as follows:

Group A: Human Carcinogen (sufficient evidence of carcinogenicity in humans)
Group B: Probable Human Carcinogen
- B1 - limited evidence of carcinogenicity in humans
- B2 - sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans

Group C: Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data)
Group D: Not Classifiable as to Human Carcinogenicity (inadequate or no evidence)
Group E: Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies)

Table E.2-9
Carcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation Unit Risk Factor [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
Volatile Organic Compounds				
Acetone	NA		–	D
Benzene	7.8E-03	I	leukemia	A
Bromomethane	NA		–	D
2-Butanone	NA		–	D
n-Butylbenzene	NA		–	NA
sec-Butylbenzene	NA		–	NA
Carbon disulfide	NA		–	NA
Carbon tetrachloride	6.0E-03	I	liver	B2
CFC-11	NA		–	NA
CFC-12	NA		–	NA
Chlorinated fluorocarbon (Freon 113)	NA		–	NA
Chlorobenzene	NA		–	D
Chlorodibromomethane	2.7E-02	C	liver	C
Chloroethane	NA		–	C
Chloroform	2.3E-02	I	liver	B2
Chloromethane	NA		NA	D
2-Chlorophenol	NA		–	NA
Cymene	NA		–	NA
Dibenzofuran	NA		–	D
1,3-Dichlorobenzene	NA		–	D
1,4-Dichlorobenzene	1.1E-02	C	NA	C
1,1-Dichloroethane	1.6E-03	C	NA	C
1,2-Dichloroethane	2.6E-02	I	circulatory system	B2
1,1-Dichloroethylene	NA		–	C
Dichloromethane	4.7E-04	I	lung, liver	B2
Ethanol	NA		–	NA
Ethylbenzene	NA		–	D
Isopropylbenzene	NA		–	D
Toluene	NA		–	D
Methyl tert-Butyl Ether (MTBE)	2.6E-04	C	–	NA
Nitrobenzene	4.0E-02	I	–	D
n-Propylbenzene	NA		–	NA
Styrene (monomer)	NA		–	B2
Tetrachloroethene	5.9E-03	C	liver, kidney	B2
1,1,2,2-Tetrachloroethane	5.8E-02	I	liver	C
1,1,1-Trichloroethane	NA		–	D
1,2,3-Trichlorobenzene	NA		–	NA
1,2,3-Trichloropropane	NA		–	B2

Table E.2-9
Carcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation Unit Risk Factor [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
1,2,4-Trichlorobenzene	NA		–	D
1,2,4-Trimethylbenzene	NA		–	NA
1,3,5-Trimethylbenzene	NA		–	NA
Trichloroethylene	2.0E-03	C	lung	C-B2
Vinyl chloride	4.4E-03	I	liver	A
m,p-Xylene	NA		–	D
o-Xylene	NA		–	D
Xylenes	NA		–	D
Semi Volatile Organic Compounds				
Benzidine	6.7E+01	I	bladder	A
Benzoic acid	NA		–	D
Benzyl butyl phthalate	NA		–	C
Bis(2-ethylhexyl)phthalate	NA		–	B2
Carbazole	NA		–	B2
p-Chloroaniline	NA		–	NA
4-Chloro-3-methylphenol	NA		–	NA
Dichlorvos (DDVP)	8.3E-02	C	–	NA
Diethyl phthalate	NA		–	D
2,4-Dinitrotoluene	8.9E-02	C	–	NA
a,a-Dimethylphenethylamine	NA		–	NA
Dimethyl phthalate	NA		–	D
Di-n-butyl phthalate	NA		–	D
m-Dinitrobenzene	NA		–	D
Di-n-octyl phthalate	NA		–	D
Diphenylamine	NA		–	NA
Ethyl methanesulfonate	NA		–	NA
Methanamine, n-methyl-n-nitroso	1.4E+01	I	multiple	B2
2-Nitrophenol	NA		–	NA
4-Nitrophenol	NA		–	NA
n-Nitrosodi-n-propylamine	NA		multiple	B2
n-Nitrosodiphenylamine	2.6E-03	C	bladder	B2
n-Nitrosodiphenylamine & diphenylamine	NA		–	NA
Pentachlorophenol	5.1E-03	C	liver, adrenal	B2
Phenol	NA		–	D
1,2,4,5-Tetrachlorobenzene	NA		–	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	NA		–	C
1,3,5-Trinitrobenzene	NA		–	NA
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	NA		–	NA

Table E.2-9
Carcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation Unit Risk Factor [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
Anthracene	NA		–	D
Benzo(a)anthracene	1.1E-01	C	respiratory	B2
Benzo(a)pyrene	1.1E+00	C	respiratory	B2
Benzo(b)fluoranthene	1.1E-01	C	respiratory	B2
Benzo(g,h,i)perylene	NA		–	D
Benzo(k)fluoranthene	1.1E-01	C	respiratory	B2
1,2-Benzphenanthracene	1.1E-02	C	respiratory	B2
Dibenz(a,h)anthracene	1.2E+00	C	respiratory	B2
Fluoranthene	NA		–	D
Fluorene	NA		–	D
Indeno(1,2,3-cd)pyrene	1.1E-01	C	respiratory	B2
1-Methylnaphthalene	NA		–	NA
2-Methylnaphthalene	NA		–	NA
Naphthalene	NA		respiratory	C
Phenanthrene	NA		–	D
Pyrene	NA		–	D
Herbicides				
2,4-D	NA		–	NA
2,4-DB	NA		–	NA
2,4,5-T	NA		–	NA
2,4,5-TP (Silvex)	NA		–	D
Pesticides				
Aldrin	4.9E+00	I	liver	B2
Basudin, neocidol	NA		–	NA
beta-BHC	5.3E-01	I	liver	C
Camphechlor	3.2E-01	I	liver	B2
Chlordane	1.0E-01		liver	B2
4,4-DDD	6.9E-02	C	–	B2
4,4-DDE	9.7E-02	C	–	B2
4,4-DDT	9.7E-02	I	liver	B2
delta-BHC	NA		–	D
Dieldrin	4.6E+00	I	liver	B2
Endosulfan II	NA		–	NA
Endrin	NA		–	D
Endrin aldehyde	NA		–	D
gamma-BHC	3.1E-01	C	NA	B2-C
Heptachlor	1.3E+00	I	liver	B2
Heptachlor epoxide	2.6E+00	I	liver	B2
Polychlorinated Biphenyls				

Table E.2-9
Carcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation Unit Risk Factor [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
Aroclor 1254	5.7E-01	I	liver	B2
Aroclor 1260	5.7E-01	I	liver	B2
Explosives				
2-Amino-4,6-dinitrotoluene	NA		–	NA
4-Amino-2,6-dinitrotoluene	NA		–	NA
2,6-Dinitrotoluene	NA		–	NA
2-Nitrotoluene	NA		–	NA
3-Nitrotoluene	NA		–	NA
4-Nitrotoluene	NA		–	NA
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	NA		–	D
RDX	NA		–	C
Tetryl	NA		–	NA
2,4,6-Trinitrotoluene	NA		–	C
Inorganics				
Aluminum	NA		–	NA
Antimony	NA		–	NA
Arsenic	4.3E+00	I	lung	A
Barium	NA		–	D
Beryllium	2.4E+00	I	lung	B1
Boron	NA		–	NA
Cadmium	1.8E+00	I	respiratory	D/B1
Chloride	NA		–	NA
Chromium	NA		–	NA
Chromium (Hexavalent)	8.4E+01	I	lung	D/A
Cobalt	9.0E+00	P	lung	[see footnote]
Copper	NA		–	D
Cyanide (Total)	NA		–	D
Fluoride	NA		–	NA
Iron	NA		–	NA
Lead	NA		–	B2
Manganese	NA		–	D
Mercury	NA		–	C
Molybdenum	NA		–	NA
Nickel	2.6E-01	C	–	NA
Nitrate	NA		–	NA
Nitrite	NA		–	NA
Nitrate + Nitrite	NA		–	NA
Phosphorus	NA		–	?
Selenium	NA		–	D

Table E.2-9
Carcinogenic Toxicity Values for Inhalation Exposure
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Inhalation Unit Risk Factor [a] $(mg/m^3)^{-1}$	[ref]	Tumor Site	Weight of Evidence Classification [b]
Silver	NA		–	D
Thallium	NA		–	NA
Tin	NA		–	NA
Titanium	NA		–	NA
Vanadium	NA		–	NA
Zinc	NA		–	D
Radiometrics				
Radium 228	NA		–	NA

References [ref]:

C	CalEPA, Toxicity Criteria database (CalEPA, 2009b).
H	USEPA, Health Effects Summary Table (HEAST; USEPA, 1997b).
I	USEPA, Integrated Risk Information System (IRIS; USEPA, 2009b).
P	Provisional Peer Reviewed Toxicity Values (PPRTV) by the National Center for Environmental Assessment (NCEA) as referenced in USEPA Regional Screening Level Table (USEPA, 2009a).
–	Not applicable.
CNS	Central nervous system.
$(mg/kg/day)^{-1}$	Inverse milligrams per kilogram per day.
$(mg/m^3)^{-1}$	Inverse milligrams per cubic meter.
NA	Not available.
[a]	Toxicity values were obtained from sources referenced above in the following order of priority: *I, P,C, H.*
[b]	USEPA cancer weight-of-evidence categories are as follows:

Group A: Human Carcinogen (sufficient evidence of carcinogenicity in humans)
Group B: Probable Human Carcinogen

Group C: Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data)
Group D: Not Classifiable as to Human Carcinogenicity (inadequate or no evidence)
Group E: Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies)

Table E.2-10
Dermal Absorption Parameters
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_1hr [d] (L/cm²/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
Volatile Organic Compounds									
Acetone	0	5.2E-04	calc	1.0	0.22	0.53	0.0015	calc	7.49E-07
Benzene	0	1.5E-02	DRA	1.0	0.29	0.70	0.0501	DRA	2.34E-05
Bromomethane	0	2.8E-03	DRA	1.0	0.36	0.87	0.0107	DRA	4.81E-06
2-Butanone	0	9.6E-04	DRA	1.0	0.27	0.65	0.0031	DRA	1.48E-06
n-Butylbenzene	0	3.7E-01	EPI	1.0	0.59	2.37	1.66	calc	7.90E-04
sec-Butylbenzene	0	1.4E-01	calc	1.0	0.59	0.78	0.62	calc	3.39E-04
Carbon disulfide	0	1.7E-02	DRA	1.0	0.30	0.72	0.06	DRA	2.68E-05
Carbon tetrachloride	0	1.6E-02	DRA	1.0	0.78	1.86	0.0767	DRA	3.91E-05
CFC-11	0	1.3E-02	DRA	1.0	0.62	1.50	0.06	calc	2.83E-05
CFC-12	0	9.0E-03	DRA	1.0	0.51	1.22	0.0376	DRA	1.78E-05
Chlorinated fluorocarbon (Freon 113)	0	1.9E-02	calc	1.0	1.20	2.80	0.098	calc	5.75E-05
Chlorobenzene	0	2.8E-02	DRA	1.0	0.46	1.09	0.1169	DRA	5.25E-05
Chlorodibromomethane	0.1	3.2E-03	DRA	1.0	1.57	3.77	0.0178	DRA	1.11E-05
Chloroethane	0	6.1E-03	DRA	1.0	0.24	0.59	0.0187	DRA	8.97E-06
Chloroform	0	6.8E-03	DRA	1.0	0.50	1.19	0.0285	DRA	1.33E-05
Chloromethane	0	3.3E-03	DRA	1.0	0.20	0.49	0.009	DRA	4.60E-06
2-Chlorophenol	0	8.0E-03	DRA	1.0	0.56	1.34	0.0346	DRA	1.65E-05
Cymene	0	2.4E-01	EPI	1.0	0.59	2.28	1.05	calc	5.01E-04
Dibenzofuran	0.1	1.5E-01	EPI	1.0	0.92	3.55	0.753	calc	4.00E-04
1,3-Dichlorobenzene	0	5.8E-02	DRA	1.0	0.71	1.71	0.2705	DRA	1.35E-04
1,4-Dichlorobenzene	0	4.2E-02	DRA	1.0	0.71	1.71	0.1959	DRA	9.78E-05
1,1-Dichloroethane	0	6.7E-03	DRA	1.0	0.38	0.92	0.0257	DRA	1.18E-05
1,2-Dichloroethane	0	4.2E-03	DRA	1.0	0.38	0.92	0.0158	DRA	7.38E-06
1,1-Dichloroethylene	0	1.2E-02	DRA	1.0	0.37	0.89	0.0438	DRA	2.08E-05
Dichloromethane	0	3.5E-03	DRA	1.0	0.32	0.76	0.0126	DRA	5.72E-06
Ethanol	0.1	6.0E-04	RAIS	—	—	—	—		6.01E-07
Ethylbenzene	0	4.9E-02	DRA	1.0	0.42	1.01	0.192	DRA	8.78E-05
Isopropylbenzene	0	1.4E-01	EPI	1.0	0.49	1.18	0.59	calc	2.71E-04
Toluene	0	3.1E-02	DRA	1.0	0.35	0.84	0.113	DRA	5.20E-05
Methyl tert-Butyl Ether (MTBE)	0	3.4E-03	calc	1.0	0.33	0.79	0.012	calc	5.63E-06
Nitrobenzene	0	5.6E-03	calc	1.0	0.51	1.20	0.024	calc	1.11E-05
n-Propylbenzene	0	1.5E-01	EPI	1.0	0.49	1.96	0.62	calc	2.84E-04
Styrene (monomer)	0	3.7E-02	DRA	1.0	0.41	0.98	0.145	DRA	6.70E-05
Tetrachloroethene	0	3.3E-02	DRA	1.0	0.91	2.18	0.163	DRA	8.70E-05
1,1,2,2-Tetrachloroethane	0	6.9E-03	DRA	1.0	0.93	2.24	0.0344	DRA	1.84E-05
1,1,1-Trichloroethane	0	1.3E-02	DRA	1.0	0.60	1.43	0.0577	DRA	2.78E-05
1,2,3-Trichlorobenzene	0	1.1E-01	EPI	1.0	1.09	2.62	0.58	calc	3.23E-04
1,2,3-Trichloropropane	0	5.3E-03	calc	1.0	0.70	1.70	0.025	calc	1.23E-05

Table E.2-10
Dermal Absorption Parameters
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_1hr [d] (L/cm²/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
1,2,4-Trichlorobenzene	0	6.6E-02	DRA	1.0	1.11	2.66	0.335	DRA	1.92E-04
1,2,4-Trimethylbenzene	0	1.3E-01	EPI	1.0	0.49	1.18	0.561	calc	2.57E-04
1,3,5-Trimethylbenzene	0	9.4E-02	EPI	1.0	0.49	1.18	0.398	calc	1.83E-04
Trichloroethylene	0	1.2E-02	DRA	1.0	0.58	1.39	0.0529	DRA	2.53E-05
Vinyl chloride	0	5.6E-03	DRA	1.0	0.24	0.57	0.017	DRA	8.24E-06
m,p-Xylene	0	5.3E-02	DRA	1.0	0.42	1.01	0.21	DRA	9.49E-05
o-Xylene	0	5.3E-02	DRA	1.0	0.42	1.01	0.21	DRA	9.49E-05
Xylenes	0	5.3E-02	DRA	1.0	0.42	1.01	0.21	DRA	9.49E-05
Semi Volatile Organic Compounds									
Benzidine	0.1	1.1E-03	DRA	1.0	1.15	2.76	0.0059	DRA	3.26E-06
Benzoic acid	0.1	5.7E-03	DRA	1.0	0.51	1.24	0.0236	DRA	1.13E-05
Benzyl butyl phthalate	0.1	5.4E-02	EPI	0.9	5.89	14.14	0.368	calc	3.27E-04
Bis(2-ethylhexyl)phthalate	0.1	2.5E-02	DRA	0.8	16.64	39.93	0.19	DRA	2.25E-04
Carbazole	0.1	8.0E-02	EPI	1.0	0.91	2.18	0.396	calc	2.10E-04
p-Chloroaniline	0.1	1.1E-02	calc	1.0	0.54	1.30	0.047	calc	2.23E-05
4-Chloro-3-methylphenol	0.1	2.9E-02	DRA	1.0	0.67	1.61	0.1287	DRA	6.56E-05
Dichlorvos (DDVP)	0.1	NA	NA	1.0	NA	NA	NA	NA	—
Diethyl phthalate	0.1	3.9E-03	DRA	1.0	1.87	4.50	0.0221	DRA	1.47E-05
2,4-Dinitrotoluene	0.102	3.1E-03	DRA	1.0	1.12	2.69	0.0159	DRA	9.07E-06
a,a-Dimethylphenethylamine	0.1	4.2E-03	calc	1.0	0.72	1.73	0.0196	calc	9.77E-06
Dimethyl phthalate	0.1	1.4E-03	DRA	1.0	1.30	3.13	0.0075	DRA	4.41E-06
Di-n-butyl phthalate	0.1	2.4E-02	DRA	0.9	3.86	9.27	0.154	DRA	1.17E-04
m-Dinitrobenzene	0.1	1.6E-03	calc	0.0	0.92	2.20	0.008	calc	0.00E+00
Di-n-octyl phthalate	0.1	4.5E+00	EPI	0.3	16.16	75.22	33.82	calc	1.48E-02
Diphenylamine	0.1	4.5E-02	calc	1.0	0.82	2.00	0.22	calc	1.13E-04
Ethyl methanesulfonate	0.1	2.5E-04	calc	1.0	0.52	1.25	0.0011	calc	4.93E-07
Methanamine, n-methyl-n-nitroso	0.1	2.5E-04	DRA	1.0	0.28	0.67	0.0008	DRA	3.90E-07
2-Nitrophenol	0.1	4.1E-03	DRA	1.0	0.63	1.50	0.018	calc	8.99E-06
4-Nitrophenol	0.1	4.9E-03	DRA	1.0	0.63	1.50	0.024	calc	1.07E-05
n-Nitrosodi-n-propylamine	0.1	2.3E-03	DRA	1.0	0.57	1.37	0.0103	DRA	4.80E-06
n-Nitrosodiphenylamine	0.1	1.5E-02	DRA	1.0	1.38	3.31	0.0811	DRA	4.87E-05
n-Nitrosodiphenylamine & diphenylamine	0.1	NA	NA	1.0	NA	NA	NA	NA	—
Pentachlorophenol	0.25	3.9E-01	DRA	0.9	3.33	13.82	2.448	DRA	1.77E-03
Phenol	0.1	4.3E-03	DRA	1.0	0.36	0.86	0.016	DRA	7.38E-06
1,2,4,5-Tetrachlorobenzene	0.1	1.1E-01	calc	1.0	1.70	6.72	0.6391	calc	4.08E-04
3,5,5-Trimethyl-2-cyclohexene-1-one	0.1	3.4E-03	DRA	1.0	0.63	1.52	0.0154	DRA	7.46E-06
1,3,5-Trinitrobenzene	0.019	5.5E-04	calc	1.0	1.60	3.90	0.0031	calc	1.92E-06
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	0.13	1.3E-01	EPI	1.0	0.77	3.05	0.635	calc	3.23E-04

Table E.2-10
Dermal Absorption Parameters
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_1hr [d] (L/cm²/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
Anthracene	0.13	2.3E-01	EPI	1.0	1.05	4.09	1.16	calc	6.37E-04
Benzo(a)anthracene	0.13	4.7E-01	DRA	1.0	2.03	8.53	2.8	DRA	1.85E-03
Benzo(a)pyrene	0.13	7.0E-01	DRA	1.0	2.69	11.67	4.28	DRA	3.17E-03
Benzo(b)fluoranthene	0.13	7.0E-01	DRA	1.0	2.77	12.03	4.28	DRA	3.22E-03
Benzo(g,h,i)perylene	0.13	1.9E+00	EPI	0.6	3.70	16.86	11.83	calc	5.90E-03
Benzo(k)fluoranthene	0.13	1.2E+00	EPI	0.8	2.72	12.17	7.331	calc	4.38E-03
1,2-Benzphenanthracene	0.13	4.7E-01	DRA	1.0	2.03	8.53	2.804	DRA	1.85E-03
Dibenz(a,h)anthracene	0.13	1.5E+00	DRA	0.6	3.88	17.57	9.7	DRA	4.90E-03
Fluoranthene	0.13	2.2E-01	DRA	1.0	1.45	5.68	1.2034	DRA	7.32E-04
Fluorene	0.13	1.7E-01	EPI	1.0	0.90	3.46	0.848	calc	4.48E-04
Indeno(1,2,3-cd)pyrene	0.13	1.0E+00	DRA	0.6	3.78	16.83	6.7	DRA	3.22E-03
1-Methylnaphthalene	0.13	1.5E-01	EPI	1.0	0.66	2.59	0.665	calc	3.26E-04
2-Methylnaphthalene	0.13	1.4E-01	EPI	1.0	0.66	2.60	0.651	calc	3.19E-04
Naphthalene	0.13	4.7E-02	DRA	1.0	0.56	1.34	0.205	DRA	9.72E-05
Phenanthrene	0.13	1.4E-01	DRA	1.0	1.06	4.11	0.719	DRA	3.98E-04
Pyrene	0.13	3.2E-01	EPI	1.0	1.43	5.77	1.77	calc	1.07E-03
Herbicides									
2,4-D	0.05	7.0E-03	calc	1.0	1.80	4.40	0.04	calc	2.60E-05
2,4-DB	0.1	NA	NA	1.0	NA	NA	NA	NA	—
2,4,5-T	0.1	NA	NA	NA	NA	NA	NA	NA	—
2,4,5-TP (Silvex)	0.1	NA	NA	NA	NA	NA	NA	NA	—
Pesticides									
Aldrin	0.1	1.4E-03	DRA	1.0	11.89	28.54	0.0102	DRA	1.33E-05
Basudin, neocidol	0.1	NA	NA	NA	NA	NA	NA	NA	—
beta-BHC	0.1	1.6E-02	EPI	0.9	4.47	10.73	0.102	calc	8.15E-05
Chlordane	0.04	3.8E-02	DRA	0.7	21.21	50.91	0.296	DRA	3.39E-04
4,4-DDD	0.1	1.8E-01	DRA	0.8	6.65	25.99	1.239	DRA	1.03E-03
4,4-DDE	0.1	1.6E-01	DRA	0.8	6.48	25.08	1.097	DRA	9.01E-04
4,4-DDT	0.03	2.7E-01	DRA	0.7	10.45	42.51	1.955	DRA	1.69E-03
delta-BHC	0.04	2.8E-02	EPI	0.9	4.47	10.73	0.183	calc	1.47E-04
Dieldrin	0.1	1.2E-02	DRA	0.8	14.62	35.09	0.0882	DRA	1.01E-04
Endosulfan II	0.1	3.3E-03	EPI	0.9	19.95	47.88	0.0255	calc	3.66E-05
Endrin	0.1	1.2E-02	DRA	0.8	14.62	35.09	0.0895	DRA	1.01E-04
Endrin aldehyde	0.1	2.3E-02	EPI	0.8	14.27	34.25	0.175	calc	1.95E-04
gamma-BHC	0.04	1.1E-02	DRA	0.9	4.57	10.97	0.0722	DRA	5.85E-05
Heptachlor	0.1	8.6E-03	DRA	0.8	13.27	31.85	0.0639	DRA	6.93E-05
Heptachlor epoxide	0.1	2.8E-02	EPI	0.8	15.90	38.16	0.2095	calc	2.43E-04
Polychlorinated Biphenyls									
Aroclor 1254	0.14	1.3E+00	EPI	0.6	7.12	32.12	8.97	calc	5.71E-03

Table E.2-10
Dermal Absorption Parameters
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_1hr [d] (L/cm²/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
Aroclor 1260	0.14	5.5E+00	EPI	0.1	12.39	57.78	40.5	calc	5.33E-03
Explosives									
2-Amino-4,6-dinitrotoluene	0.006	NA	NA	1.0	NA	NA	NA	NA	—
4-Amino-2,6-dinitrotoluene	0.009	NA	NA	1.0	NA	NA	NA	NA	—
2,6-Dinitrotoluene	0.099	2.1E-03	DRA	1.0	1.12	2.69	0.0159	DRA	6.14E-06
2-Nitrotoluene	0	NA	NA	NA	NA	NA	NA	NA	—
3-Nitrotoluene	0.1	NA	NA	NA	NA	NA	NA	NA	—
4-Nitrotoluene	0.1	9.9E-03	calc	1.0	0.62	1.49	0.0447	calc	2.16E-05
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	0.006	NA	NA	NA	NA	NA	NA	NA	—
RDX	0.015	3.5E-04	calc	1.0	1.80	4.40	0.002	calc	1.30E-06
Tetryl	0.1	4.9E-04	calc	1.0	4.30	10.00	0.0032	calc	2.81E-06
2,4,6-Trinitrotoluene	0.032	1.0E-03	calc	1.0	2.00	4.70	0.0058	calc	3.91E-06
Inorganics									
Aluminum	0	1.0E-03	W	—	—	—	—		1.00E-06
Antimony	0	1.0E-03	W	—	—	—	—		1.00E-06
Arsenic	0.03	1.0E-03	W	—	—	—	—		1.00E-06
Barium	0	1.0E-03	W	—	—	—	—		1.00E-06
Beryllium	0	1.0E-03	W	—	—	—	—		1.00E-06
Boron	0	1.0E-03	W	—	—	—	—		1.00E-06
Cadmium	0.001	1.0E-03	DRA	—	—	—	—		1.00E-06
Chloride	0	1.0E-03	W	—	—	—	—		1.00E-06
Chromium	0	2.0E-03	DRA	—	—	—	—		2.00E-06
Chromium (Hexavalent)	0	2.0E-03	DRA	—	—	—	—		2.00E-06
Cobalt	0	4.0E-04	DRA	—	—	—	—		4.00E-07
Copper	0	1.0E-03	W	—	—	—	—		1.00E-06
Cyanide (Total)	0.1	1.0E-03	W	—	—	—	—		1.00E-06
Fluoride	0	1.0E-03	W	—	—	—	—		1.00E-06
Iron	0	1.0E-03	W	—	—	—	—		1.00E-06
Lead	0	1.0E-04	DRA	—	—	—	—		1.00E-07
Manganese	0	1.0E-03	W	—	—	—	—		1.00E-06
Mercury	0	1.0E-03	DRA	—	—	—	—		1.00E-06
Molybdenum	0	1.0E-03	W	—	—	—	—		1.00E-06
Nickel	0	2.0E-04	DRA	—	—	—	—		2.00E-07
Nitrate	0	1.0E-03	W	—	—	—	—		1.00E-06
Nitrite	0	1.0E-03	W	—	—	—	—		1.00E-06
Nitrate + Nitrite	0	1.0E-03	W	—	—	—	—		1.00E-06
Phosphorus	0	NA		—	—	—	—		—
Selenium	0	1.0E-03	W	—	—	—	—		1.00E-06
Silver	0	6.0E-04	DRA	—	—	—	—		6.00E-07

Table E.2-10
Dermal Absorption Parameters
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern	ABSd [a]	Permeability Constant Kp (cm/hour) [b]		Non-Steady State Dermal Absorption Parameters [c]					DA_1hr [d] (L/cm²/event)
		Value	[Ref]	FA (unitless)	τ (hour)	t* (hour)	B (unitless)	Source	
Thallium	0	1.0E-03	W	—	—	—	—		1.00E-06
Tin	0	1.0E-03	W	—	—	—	—		1.00E-06
Titanium	0	1.0E-03	W	—	—	—	—		1.00E-06
Vanadium	0	1.0E-03	W	—	—	—	—		1.00E-06
Zinc	0	6.0E-04	DRA	—	—	—	—		6.00E-07
Radiometrics									
Radium 228	0	1.0E-03	W	—	—	—	—		1.00E-06

References [ref]:

calc	Calculated value (USEPA, 2004a).
DRA	Dermal Risk Assessment Guidance (USEPA, 2004a). The B values are calculated but are consistent with values presented in the guidance.
EPI	EPI Suite (USEPA, 2004c).
RAIS	Oak Ridge National Laboratory (ORNL), Risk Assessment Information System (RAIS; ORNL 2009b).
W	Assumed to be equal to the value for water (USEPA, 2004a).
–	Not applicable.
cm	Centimeter.
L	Liter.
NA	Not available.
[a]	Dermal absorption efficiency (ABSd) for uptake of constituents from a soil matrix (unitless) (USEPA, 2004a).
[b]	Permeability coefficient for dermal contact with constituents in water (centimeters per hour).
[c]	Absorption parameters for use in the non-steady state model for dermal contact with constituents in water. τ = Lag time for dermal absorption through the skin. B = Ratio of the permeability coefficient through the stratus corneum relative to the permeability coefficient across the viable epidermis. FA = Fraction of absorbed water. t* = Time required to reach steady state.
[d]	Dermal absorption (DA) calculated according to equations presented in USEPA (2004) based on exposure time (ET) = 1 hour.

Table E.2-11
Values Used for Daily Intake Calculations – Potential Current/Hypothetical Future Site Worker Exposure to Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	Chronic Daily Intake (CDI) (mg/kg-day)=
	IR-S	Ingestion Rate of Soil	mg/day	100	NMED, 2009a	CSO x IR x EF x ED x CF2 x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	225	NMED, 2009a	
	ED	Exposure Duration	years	25	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	
Dermal	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	CDI (mg/kg-day)=
	ABS_d	Dermal Absorption Fraction	unitless	chemical-specific	USEPA, 2004a	CSO x ABS_d x SSAF x SA x CF2 x EF x
	SSAF	Soil to Skin Adherence Factor	mg/cm^2	0.2	NMED, 2009a	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	3,300	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	0.000001	--	
	EF	Exposure Frequency	days/year	225	NMED, 2009a	
	ED	Exposure Duration	years	25	NMED, 2009a	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	
Inhalation of dust and volatiles	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	CDI (mg/m^3)=
	EF	Exposure Frequency	days/year	225	NMED, 2009a	CSO x EF x ED x ET x CF3 x (1/PEF + 1/VF)
	ED	Exposure Duration	years	25	NMED, 2009a	x 1/AT
	ET	Exposure Time	hrs/day	8	USEPA, 1991a	
	CF3	Conversion Factor	days/hour	0.042	USEPA, 2009	
	PEF	Particulate Emission Factor	m^3/kg	Calculated	NMED, 2009a	
	VF	Volatilization Factor	m^3/kg	Calculated	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	
Inhalation of volatiles migrating to indoor air (Subsurface soil)	CA	Chemical Concentration in Air	mg/m3	TBD	--	Chronic Daily Intake (CDI) (mg/m^3)=
	EF	Exposure Frequency	days/year	225	NMED, 2009a	CA x EF x ED x ET x CF3 x 1/AT
	ED	Exposure Duration	years	25	NMED, 2009a	
	ET	Exposure Time	hrs/day	8	USEPA, 1991b	
	CF3	Conversion Factor	days/hour	0.042	USEPA, 2009	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	

Table E.2-12
Values Used for Daily Intake Calculations – Potential Current/Hypothetical Future Site Worker Exposure to Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	ug/L	TBD	--	Chronic Daily Intake (CDI) (mg/kg-day)=
	IR-W	Ingestion Rate	liters/day	1	USEPA, 1991a	CW x IR-W x EF x ED x CF1 x
	EF	Exposure Frequency	days/year	225	NMED, 2009a	1/BW x 1/AT
	ED	Exposure Duration	years	25	NMED, 2009a	
	CF1	Conversion Factor 1	mg/ug	0.001	--	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	
Dermal	CW	Chemical Concentration in Water	ug/L	TBD	--	CDI (mg/kg-day)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x SA x DA_{EVENT} x EF x
	DA_{EVENT}	Absorbed Dose per Event	L/cm^2-event	Calculated	USEPA, 2004b	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	3,300	NMED, 2009a	
	EF	Exposure Frequency	days/year	225	NMED, 2009a	
	ED	Exposure Duration	years	25	NMED, 2009a	
	ET	Exposure Time	hrs/day	0.25	USEPA, 2004a	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	
Inhalation of volatiles migrating to indoor air (if pathway complete)	CA	Chemical Concentration in Air	mg/m^3	TBD	--	CDI (mg/m^3)=
	CF3	Conversion Factor	days/hour	0.042	USEPA, 2009	CA x EFx ED x ET x CF3
	EF	Exposure Frequency	days/year	225	NMED, 2009a	x 1/AT
	ED	Exposure Duration	years	25	NMED, 2009a	
	ET	Exposure Time	hrs/day	8	USEPA, 1991a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	
Inhalation of volatiles in potable water supply	CW	Chemical Concentration in Water	ug/L	TBD	--	CDI (mg/m^3)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x K x EF x ED x ET x CF3 x
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	1/AT
	EF	Exposure Frequency	days/year	225	NMED, 2009a	
	ED	Exposure Duration	years	25	NMED, 2009a	
	ET	Exposure Time	hrs/day	0.25	USEPA, 2002a	
	K	Andelman volatilization factor	L/m^3	0.5	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	USEPA, 1989	

Table E.2-13

Values Used for Daily Intake Calculations – Potential Hypothetical Future Construction Worker Exposure to Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	Subchronic Daily Intake (SDI) (mg/kg-day)=
	IR-S	Ingestion Rate of Soil	mg/day	330	NMED, 2009a	CSO x IR x EF x ED x CF2 x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	250	NMED, 2009a	
	ED	Exposure Duration	years	1	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA, 1989	
Dermal	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	SDI (mg/kg-day)=
	ABS_d	Dermal Absorption Fraction	unitless	chemical-specific	USEPA, 2004a	CSO x ABS_d x SSAF x SA x CF2 x EF x
	SSAF	Soil to Skin Adherence Factor	mg/cm^2	0.3	NMED, 2009a	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	3,300	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	EF	Exposure Frequency	days/year	250	NMED, 2009a	
	ED	Exposure Duration	years	1	NMED, 2009a	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA, 1989	
Inhalation	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	SDI (mg/m^3)=
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	CSO x EF x ED x ET x CF3 x (1/VF + 1/PEF)
	EF	Exposure Frequency	days/year	250	NMED, 2009a	x 1/AT
	ED	Exposure Duration	years	1	NMED, 2009a	
	ET	Exposure Time	hrs/day	8	USEPA, 1989	
	PEF	Particulate Emission Factor	m^3/kg	Calculated	NMED, 2009a	
	VF	Volatilization Factor	m^3/kg	Calculated	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
	AT-N	Averaging Time (Non-Cancer)	days	365	USEPA, 1989	

Table E.2-14

Values Used for Daily Intake Calculations – Potential Hypothetical Future Adult Resident Exposure to Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	Chronic Daily Intake (CDI) (mg/kg-day)=
	IR-S	Ingestion Rate of Soil	mg/day	100	NMED, 2009a	CSO x IR x EF x ED x CF2 x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	30	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	USEPA, 1989	
Dermal	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	CDI (mg/kg-day)=
	ABS_d	Dermal Absorption Fraction	unitless	chemical-specific	USEPA, 2004a	CSO x ABS_d x SSAF x SA x CF2 x EF x
	SSAF	Soil to Skin Adherence Factor	mg/cm^2	0.07	NMED, 2009a	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	5,700	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	30	NMED, 2009a	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	USEPA, 1989	
Inhalation of dust and volatiles	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	CDI (mg/m^3)=
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	CSO x EF x ED x ET x CF3 x (1/PEF + 1/VF)
	EF	Exposure Frequency	days/year	350	NMED, 2009a	x 1/AT
	ED	Exposure Duration	years	30	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	Assumed	
	PEF	Particulate Emission Factor	m^3/kg	Calculated	NMED, 2009a	
	VF	Volatilization Factor	m^3/kg	Calculated	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
Inhalation of volatiles migrating to indoor air (Subsurface soil) (if pathway complete)	CA	Chemical Concentration in Air	mg/m^3	TBD	--	CDI (mg/m^3)=CA x EF x ED x ET x CF3
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	x 1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	30	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	Assumed	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	

Table E.2-15
Values Used for Daily Intake Calculations – Potential Hypothetical Future Adult Resident Exposure to Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	ug/L	TBD	--	Chronic Daily Intake (CDI) (mg/kg-day)=
	IR-W	Ingestion Rate	liters/day	2	NMED, 2009a	CW x IR-W x EF x ED x CF1 x
	EF	Exposure Frequency	days/year	350	NMED, 2009a	1/BW x 1/AT
	ED	Exposure Duration	years	30	NMED, 2009a	
	CF1	Conversion Factor 1	mg/ug	0.001	--	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	USEPA, 1989	
Dermal	CW	Chemical Concentration in Water	ug/L	TBD	--	CDI (mg/kg-day)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x SA x DA_{EVENT} x EF x
	DA_{EVENT}	Absorbed Dose per Event	L/cm^2-event	calculated	USEPA, 2004a	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	18,000	USEPA, 2004a	
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	30	NMED, 2009a	
	t_{event}	Event Duration	hr/event	0.58	USEPA, 2004a	
	BW	Body Weight	kg	70	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	USEPA, 1989	
Inhalation of volatiles migrating to indoor air (if pathway complete)	CA	Chemical Concentration in Air	mg/m^3	TBD	--	CDI (mg/m^3)=
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	CA x EF x ED x ET x CF3 x
	EF	Exposure Frequency	days/year	350	NMED, 2009a	1/AT
	ED	Exposure Duration	years	30	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	USEPA, 1991a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
Inhalation of volatiles in potable water supply	CW	Chemical Concentration in Water	ug/L	TBD	--	CDI (mg/m^3)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x K x EF x ED x ET x CF3 x
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	30	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	USEPA, 2004a	
	K	Andelman volatilization factor	L/m^3	0.5	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	

Table E.2-16

Values Used for Daily Intake Calculations – Potential Hypothetical Future Age-Adjusted Resident Exposure to Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	Chronic Daily Intake (SDI) (mg/kg-day)=
	IR-Sadj	Ingestion Rate of Soil (age-adjusted)	mg-yr/kg-day	114	NMED, 2009a	CSO x IR-Sadj x EF x CF2 x 1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
Dermal	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	CDI (mg/kg-day)=
	SFSadj	Dermal Factor for Soils (age-adjusted)	mg-yr/kg-day	361	NMED, 2009a	
	ABS_d	Dermal Absorption Fraction	unitless	chemical-specific	USEPA, 2004a	CSO x ABS_d x SFSadj x CF2 x EF x 1/AT
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	

Table E.2-17
Values Used for Daily Intake Calculations – Potential Hypothetical Future Age-Adjusted Resident Exposure to Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	ug/L	TBD	--	Chronic Daily Intake (CDI) (mg/kg-day)=
	IR-Wadj	Ingestion Rate (age-adjusted)	liters-yr/kg-day	1.1	NMED, 2009a	CW x IR-Wadj x EF x CF1 x 1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	CF1	Conversion Factor 1	mg/ug	0.001	--	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	
Dermal	CW	Chemical Concentration in Water	ug/L	TBD	--	CDI (mg/kg-day)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x SAadj x DA_{EVENT} x EF x 1/AT
	DA_{EVENT}	Absorbed Dose per Event	L/cm^2-day	Calculated	USEPA, 2004a	
	SAadj	Skin Surface Area Available for Contact (age-adjusted)	$yr\text{-}cm^2/kg$	8,811	USEPA, 2004a	
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	t_{event} adj	Event Duration (age-adjusted)	hr/event	0.66	USEPA, 2004a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 1989	

Table E.2-18

Values Used for Daily Intake Calculations – Potential Hypothetical Future Child Resident Exposure to Soil
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	Subchronic Daily Intake (SDI) (mg/kg-day)=
	IR-S	Ingestion Rate of Soil	mg/day	200	NMED, 2009a	CSO x IR x EF x ED x CF2 x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	6	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	BW	Body Weight	kg	15	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	
Dermal	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	SDI (mg/kg-day)=
	ABS_d	Dermal Absorption Fraction	unitless	chemical-specific	USEPA, 2004a	CSO x ABS_d x SSAF x SA x CF2 x EF x
	SSAF	Soil to Skin Adherence Factor	mg/cm^2	0.2	NMED, 2009a	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	2,800	NMED, 2009a	
	CF2	Conversion Factor	kg/mg	1.00E-06	--	
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	6	NMED, 2009a	
	BW	Body Weight	kg	15	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	
Inhalation of dust and volatiles	CSO	Chemical Concentration in Soil	mg/kg	TBD	--	SDI (mg/m^3)=
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	CSO x CF3 x EF x ED x ET x (1/PEF + 1/VF)
	EF	Exposure Frequency	days/year	350	NMED, 2009a	x 1/AT
	ED	Exposure Duration	years	6	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	NMED, 2009a	
	PEF	Particulate Emission Factor	m^3/kg	Calculated	NMED, 2009a	
	VF	Volatilization Factor	m^3/kg	Calculated	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	
Inhalation of Volatiles Migrating to Indoor Air (Subsurface soil) (if pathway complete)	CA	Chemical Concentration in Air	mg/m^3	TBD	--	SDI (mg/m^3)=CA x CF3 x EF x ED x ET x
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	6	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	

Table E.2-19
Values Used for Daily Intake Calculations – Potential Hypothetical Future Child Resident Exposure to Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	ug/L	TBD	--	Subchronic Daily Intake (CDI) (mg/kg-day)=
	IR-W	Ingestion Rate	liters/day	1	USEPA, 1997a	CW x IR-W x EF x ED x CF1 x
	EF	Exposure Frequency	days/year	350	NMED, 2009a	1/BW x 1/AT
	ED	Exposure Duration	years	6	NMED, 2009a	
	CF1	Conversion Factor 1	mg/ug	0.001	--	
	BW	Body Weight	kg	15	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	
Dermal	CW	Chemical Concentration in Water	ug/L	TBD	--	SDI (mg/kg-day)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x SA x DA_{EVENT} x EF x
	DA_{EVENT}	Absorbed Dose per Event	L/cm^2-day	Calculated	USEPA, 2004a	ED x 1/BW x 1/AT
	SA	Skin Surface Area Available for Contact	cm^2	6,600	USEPA, 2004a	
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	6	NMED, 2009a	
	t_{event}	Event Duration	hr/event	1	USEPA, 2004a	
	BW	Body Weight	kg	15	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	
Inhalation of volatiles migrating to indoor air (if pathway complete)	CA	Chemical Concentration in Air	mg/m^3	TBD	--	SDI (mg/m^3)=
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	CA x CF3 x EF x ED x ET x
	EF	Exposure Frequency	days/year	350	NMED, 2009a	1/AT
	ED	Exposure Duration	years	6	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	NMED, 2009a	
	BW	Body Weight	kg	15	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	
Inhalation of volatiles in potable water supply	CW	Chemical Concentration in Water	ug/L	TBD	--	SDI (mg/m^3)=
	CF1	Conversion Factor 1	mg/ug	0.001	--	CW x CF1 x IN x EF x ED x ET x CF3 x K
	CF3	Conversion Factor 3	days/hour	0.042	USEPA, 2009	x 1/AT
	EF	Exposure Frequency	days/year	350	NMED, 2009a	
	ED	Exposure Duration	years	6	NMED, 2009a	
	ET	Exposure Time	hrs/day	24	NMED, 2009a	
	K	Andelman volatilization factor	L/m^3	0.5	NMED, 2009a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	USEPA, 1989	

Table E.2-20
Physical and Chemical Properties
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Molecular Weight (g/mol)	[ref]	Water Solubility (mg/L 25 °C)	[ref]	Vapor Pressure (mm Hg 25 °C)	[ref]	Henry's Law Constant (atm-m³/mol) (25 °C)	[ref]	Diffusivity in Air (cm²/sec)	[ref]	Diffusivity in Water (cm²/sec)	[ref]	Koc or Kd (mL/g)	[ref]	Log Kow	[ref]
Volatile Organic Compounds																
Acetone	5.81E+01	*SCDM*	1.00E+06	J&E	2.30E+02	SCDM	3.87E-05	*J&E*	1.24E-01	*J&E*	1.14E-05	*J&E*	5.75E-01	*J&E*	-2.40E-01	*CFATE*
Benzene	7.81E+01	*SCDM*	1.79E+03	J&E	9.50E+01	SCDM	5.54E-03	*J&E*	8.80E-02	*J&E*	9.80E-06	*J&E*	5.89E+01	*J&E*	2.13E+00	*SCDM*
Bromomethane	9.49E+01	*SCDM*	1.52E+04	J&E	1.62E+03	SCDM	6.22E-03	*J&E*	7.28E-02	*J&E*	1.21E-05	*J&E*	1.05E+01	*J&E*	1.19E+00	*SCDM*
2-Butanone	7.21E+01	*SCDM*	2.23E+05	J&E	9.53E+01	SCDM	5.58E-05	*J&E*	8.08E-02	*J&E*	9.80E-06	*J&E*	2.30E+00	*J&E*	2.80E-01	*SCDM*
n-Butylbenzene	1.34E+02	*EPI*	2.00E+00	J&E	1.06E+00	EPI	1.31E-02	*J&E*	5.70E-02	*J&E*	8.12E-06	*J&E*	1.11E+03	*J&E*	4.38E+00	*EPI*
sec-Butylbenzene	1.34E+02	*EPI*	3.94E+00	J&E	1.75E+00	EPI	1.39E-02	*J&E*	5.70E-02	*J&E*	8.12E-06	*J&E*	9.66E+02	*J&E*	4.57E+00	*EPI*
Carbon disulfide	7.61E+01	*SCDM*	1.19E+03	J&E	3.59E+02	SCDM	3.02E-02	*J&E*	1.04E-01	*J&E*	1.00E-05	*J&E*	4.57E+01	*J&E*	2.24E+00	*CFATE*
Carbon tetrachloride	1.54E+02	*SCDM*	7.93E+02	J&E	1.15E+02	SCDM	3.03E-02	*J&E*	7.80E-02	*J&E*	8.80E-06	*J&E*	1.74E+02	*J&E*	2.83E+00	*CFATE*
CFC-11	1.37E+02	*SCDM*	1.10E+03	J&E	8.03E+02	SCDM	9.68E-02	*J&E*	8.70E-02	*J&E*	9.70E-06	*J&E*	4.97E+02	*J&E*	2.53E+00	*SCDM*
CFC-12	1.21E+02	*SCDM*	2.80E+02	J&E	4.85E+03	SCDM	3.42E-01	*J&E*	6.65E-02	*J&E*	9.92E-06	*J&E*	4.57E+02	*J&E*	2.16E+00	*SCDM*
Chlorinated fluorocarbon (Freon 113)	1.87E+02	*SCDM*	1.70E+02	J&E	3.32E+02	SCDM	4.80E-01	*J&E*	7.80E-02	*J&E*	8.20E-06	*J&E*	1.11E+04	*J&E*	3.16E+00	*SCDM*
Chlorobenzene	1.13E+02	*SCDM*	4.72E+02	J&E	1.20E+01	SCDM	3.69E-03	*J&E*	7.30E-02	*J&E*	8.70E-06	*J&E*	2.19E+02	*J&E*	2.86E+00	*SCDM*
Chlorodibromomethane	2.08E+02	*SCDM*	2.60E+03	J&E	4.90E+00	SCDM	7.81E-04	*J&E*	1.96E-02	*J&E*	1.05E-05	*J&E*	6.31E+01	*J&E*	2.23E+00	*CFATE*
Chloroethane	6.45E+01	*SCDM*	5.68E+03	J&E	1.01E+03	SCDM	8.80E-03	*J&E*	2.71E-01	*J&E*	1.15E-05	*J&E*	4.40E+00	*J&E*	1.43E+00	*SCDM*
Chloroform	1.19E+02	*SCDM*	7.92E+03	J&E	1.97E+02	SCDM	3.66E-03	*J&E*	1.04E-01	*J&E*	1.00E-05	*J&E*	3.98E+01	*J&E*	1.97E+00	*CFATE*
Chloromethane	5.05E+01	*SCDM*	5.33E+03	J&E	4.30E+03	SCDM	8.80E-03	*J&E*	1.26E-01	*J&E*	6.50E-06	*J&E*	2.12E+00	*J&E*	9.10E-01	*SCDM*
2-Chlorophenol	1.29E+02	*SCDM*	2.20E+04	J&E	2.34E+00	SCDM	3.90E-04	*J&E*	5.01E-02	*J&E*	9.46E-06	*J&E*	3.88E+02	*J&E*	2.15E+00	*SCDM*
Cymene	1.34E+02	*CFATE*	2.34E+01	HSDB	1.46E+00	HSDB	1.10E-02	*HSDB*	7.84E-02	*L90-calc*	6.12E-06	*L90-calc*	1.32E+03	*EPI*	4.10E+00	*HSDB*
Dibenzofuran	1.68E+02	*SCDM*	3.10E+00	J&E	1.80E-04	SCDM	1.26E-05	*J&E*	2.38E-02	*J&E*	6.00E-06	*J&E*	5.15E+03	*J&E*	4.12E+00	*CFATE*
1,3-Dichlorobenzene	1.47E+02	*SCDM*	1.34E+02	J&E	2.15E+00	SCDM	3.09E-03	*J&E*	6.92E-02	*J&E*	7.86E-06	*J&E*	1.98E+03	*J&E*	3.60E+00	*CFATE*
1,4-Dichlorobenzene	1.47E+02	*SCDM*	7.90E+01	J&E	1.74E+00	EPI	2.39E-03	*J&E*	6.90E-02	*J&E*	7.90E-06	*J&E*	6.17E+02	*J&E*	3.42E+00	*SCDM*
1,1-Dichloroethane	9.90E+01	*SCDM*	5.06E+03	J&E	2.27E+02	SCDM	5.61E-03	*J&E*	7.42E-02	*J&E*	1.05E-05	*J&E*	3.16E+01	*J&E*	1.79E+00	*SCDM*
1,2-Dichloroethane	9.90E+01	*SCDM*	8.52E+03	J&E	7.89E+01	SCDM	9.77E-04	*J&E*	1.04E-01	*J&E*	9.90E-06	*J&E*	1.74E+01	*J&E*	1.47E+00	*SCDM*
1,1-Dichloroethylene	9.69E+01	*SCDM*	2.25E+03	J&E	6.00E+02	SCDM	2.60E-02	*J&E*	9.00E-02	*J&E*	1.04E-05	*J&E*	5.89E+01	*J&E*	2.13E+00	*SCDM*
Dichloromethane	8.49E+01	*SCDM*	1.30E+04	J&E	4.33E+02	SCDM	2.18E-03	*J&E*	1.01E-01	*J&E*	1.17E-05	*J&E*	1.17E+01	*J&E*	1.25E+00	*SCDM*
Ethanol	4.61E+01	*EPI*	7.92E+05	EPI	6.09E+01	EPI	4.66E-06	*EPI*	1.35E-01	*L90-calc*	1.20E-05	*L90-calc*	1.00E+00	*EPI*	-3.10E-01	*EPI*
Ethylbenzene	1.06E+02	*SCDM*	1.69E+02	J&E	9.60E+00	SCDM	7.86E-03	*J&E*	7.50E-02	*J&E*	7.80E-06	*J&E*	3.63E+02	*J&E*	3.15E+00	*CFATE*
Isopropylbenzene	1.20E+02	*SCDM*	6.13E+01	J&E	4.50E+00	SCDM	1.46E-02	*J&E*	6.50E-02	*J&E*	7.10E-06	*J&E*	4.89E+02	*J&E*	3.58E+00	*SCDM*
Toluene	9.21E+01	*SCDM*	5.26E+02	J&E	2.84E+01	SCDM	6.62E-03	*J&E*	8.70E-02	*J&E*	8.60E-06	*J&E*	1.82E+02	*J&E*	2.73E+00	*CFATE*
Methyl tert-Butyl Ether (MTBE)	8.82E+01	*CFATE*	5.10E+04	J&E	2.49E+02	CFATE	6.23E-04	*J&E*	1.02E-01	*J&E*	1.05E-05	*J&E*	7.26E+00	*J&E*	1.24E+00	*CFATE*
Nitrobenzene	1.23E+02	*SCDM*	2.09E+03	J&E	2.45E-01	SCDM	2.39E-05	*J&E*	7.60E-02	*J&E*	8.60E-06	*J&E*	6.46E+01	*J&E*	1.84E+00	*SCDM*
n-Propylbenzene	1.20E+02	*HSDB*	6.00E+01	J&E	3.42E+00	HSDB	1.07E-02	*J&E*	6.01E-02	*J&E*	7.83E-06	*J&E*	5.62E+02	*J&E*	3.57E+00	*CFATE*
Styrene (monomer)	1.04E+02	*SCDM*	3.10E+02	J&E	6.12E+00	SCDM	2.74E-03	*J&E*	7.10E-02	*J&E*	8.00E-06	*J&E*	7.76E+02	*J&E*	2.94E+00	*SCDM*
Tetrachloroethene	1.66E+02	*SCDM*	2.00E+02	J&E	1.86E+01	SCDM	1.84E-02	*J&E*	7.20E-02	*J&E*	8.20E-06	*J&E*	1.55E+02	*J&E*	3.40E+00	*CFATE*
1,1,2,2-Tetrachloroethane	1.68E+02	*SCDM*	2.96E+03	J&E	4.62E+00	SCDM	3.44E-04	*J&E*	7.10E-02	*J&E*	7.90E-06	*J&E*	9.33E+01	*J&E*	2.39E+00	*SCDM*
1,1,1-Trichloroethane	1.33E+02	*SCDM*	1.33E+03	J&E	1.24E+02	SCDM	1.72E-02	*J&E*	7.80E-02	*J&E*	8.80E-06	*J&E*	1.10E+02	*J&E*	2.48E+00	*SCDM*
1,2,3-Trichlorobenzene	1.81E+02	*HSDB*	1.80E+01	HSDB	2.10E-01	HSDB	1.25E-03	*HSDB*	3.00E-02	*J&E(124DCB)*	8.23E-06	*J&E*	1.78E+03	*J&E(124DCB*	4.05E+00	*CFATE*
1,2,3-Trichloropropane	1.47E+02	*SCDM*	1.75E+03	J&E	3.69E+00	SCDM	4.08E-04	*J&E*	7.10E-02	*J&E*	7.90E-06	*J&E*	2.20E+01	*J&E*	2.25E+00	*SCDM*
1,2,4-Trichlorobenzene	1.81E+02	*SCDM*	4.88E+01	J&E	4.31E-01	SCDM	1.42E-03	*J&E*	3.00E-02	*J&E*	8.23E-06	*J&E*	1.78E+03	*J&E*	3.98E+00	*CFATE*
1,2,4-Trimethylbenzene	1.20E+02	*RAIS*	5.70E+01	J&E	2.10E+00	CFATE	6.14E-03	*J&E*	6.06E-02	*J&E*	7.92E-06	*J&E*	1.35E+03	*J&E*	3.78E+00	*RAIS*
1,3,5-Trimethylbenzene	1.20E+02	*RAIS*	2.00E+00	J&E	2.10E+00	RAIS	5.87E-03	*J&E*	6.02E-02	*J&E*	8.67E-06	*J&E*	1.35E+03	*J&E*	3.42E+00	*RAIS*
Trichloroethylene	1.31E+02	*SCDM*	1.47E+03	J&E	7.35E+01	SCDM	1.03E-02	*J&E*	7.90E-02	*J&E*	9.10E-06	*J&E*	1.66E+02	*J&E*	2.42E+00	*CFATE*
Vinyl chloride	6.25E+01	*SCDM*	8.80E+03	J&E	2.98E+03	SCDM	2.69E-02	*J&E*	1.06E-01	*J&E*	1.23E-05	*J&E*	1.86E+01	*J&E*	1.36E+00	*CFATE*
m,p-Xylene	1.06E+02	*SCDM*	1.61E+02	J&E	8.45E+00	SCDM	7.32E-03	*J&E*	7.00E-02	*J&E*	7.80E-06	*J&E*	4.07E+02	*J&E*	3.20E+00	*SCDM*
o-Xylene	1.06E+02	*SCDM*	1.78E+02	J&E	6.61E+00	SCDM	5.18E-03	*J&E*	8.70E-02	*J&E*	1.00E-05	*J&E*	3.63E+02	*J&E*	3.13E+00	*SCDM*
Xylenes	1.06E+02	*SCDM*	1.75E+02	SCDM	7.99E+00	RAIS	6.63E-03	*RAIS*	7.14E-02	*RAIS*	9.34E-06	*RAIS*	1.60E+02	*RAIS*	3.15E+00	*RAIS*
Semi Volatile Organic Compounds																
Benzidine	1.84E+02	*SCDM*	5.00E+02	SCDM	8.00E-09	SCDM	3.88E-11	*SCDM*	3.40E-02	*RAIS*	1.50E-05	*RAIS*	1.55E+02	*RAIS*	1.34E+00	*CFATE*
Benzoic acid	1.22E+02	*SCDM*	3.50E+03	SCDM	5.16E-03	SCDM	1.54E-06	*SCDM*	5.36E-02	*J&E*	7.97E-06	*J&E*	6.00E-01	*SCDM*	1.86E+00	*SCDM*
Benzyl butyl phthalate	3.12E+02	*SCDM*	2.69E+00	SCDM	8.25E-06	SCDM	1.26E-06	*SCDM*	1.74E-02	*J&E*	4.83E-06	*J&E*	5.73E+04	*SCDM*	4.84E+00	*SCDM*
Bis(2-ethylhexyl)phthalate	3.91E+02	*SCDM*	3.40E-01	SCDM	6.45E-06	SCDM	1.02E-07	*SCDM*	3.51E-02	*J&E*	3.66E-06	*J&E*	8.74E+04	*CFATE*	5.11E+00	*CFATE*
Carbazole	1.67E+02	*SCDM*	7.48E+00	SCDM	5.19E-07	SCDM	1.53E-08	*SCDM*	3.90E-02	*J&E*	7.03E-06	*J&E*	3.38E+03	*SCDM*	3.72E+00	*CFATE*
p-Chloroaniline	1.28E+02	*SCDM*	5.30E+03	SCDM	1.23E-02	SCDM	3.31E-07	*SCDM*	4.83E-02	*J&E*	1.01E-05	*J&E*	6.59E+01	*SCDM*	1.85E+00	*SCDM*
4-Chloro-3-methylphenol	1.43E+02	*SCDM*	3.85E+03	SCDM	8.17E-03	SCDM	3.99E-07	*SCDM*	6.80E-02	*L90-calc*	1.00E-05	*est'd*	1.12E+03	*SCDM*	3.10E+00	*SCDM*
Dichlorvos (DDVP)	2.21E+02	*RAIS*	8.00E+03	RAIS	1.58E-02	RAIS	5.60E-07	*RAIS*	—	—	—	—	4.02E+02	*RAIS*	1.47E+00	*RAIS*
Diethyl phthalate	2.22E+02	*SCDM*	1.08E+03	SCDM	1.65E-03	SCDM	4.50E-07	*SCDM*	2.56E-02	*J&E*	6.35E-06	*J&E*	2.87E+02	*SCDM*	2.47E+00	*CFATE*
2,4-Dinitrotoluene	1.82E+02	*SCDM*	2.70E+02	SCDM	1.47E-04	SCDM	9.26E-08	*SCDM*	2.03E-01	*J&E*	7.06E-06	*J&E*	9.46E+01	*SCDM*	1.98E+00	*CFATE*
a,a-Dimethylphenethylamine	1.49E+02	*RAIS*	1.86E+04	RAIS	2.37E-01	RAIS	1.39E-06	*RAIS*	6.75E-02	*RAIS*	7.89E-06	*RAIS*	1.58E+03	*RAIS*	1.90E+00	*RAIS*
Dimethyl phthalate	1.94E+02	*SCDM*	4.00E+03	SCDM	1.65E-03	SCDM	1.05E-07	*SCDM*	5.68E-02	*RAIS*	6.29E-06	*RAIS*	3.50E+01	*SCDM*	1.57E+00	*SCDM*
Di-n-butyl phthalate	2.78E+02	*SCDM*	1.12E+01	SCDM	7.30E-05	SCDM	9.38E-10	*SCDM*	4.38E-02	*J&E*	7.86E-06	*J&E*	3.40E+04	*SCDM*	4.61E+00	*SCDM*
m-Dinitrobenzene	1.68E+02	*SCDM*	8.61E+02	SCDM	9.00E-04	SCDM	2.31E-07	*SCDM*	2.79E-01	*RAIS*	7.64E-06	*RAIS*	2.98E+01	*SCDM*	1.50E+00	*SCDM*
Di-n-octyl phthalate	3.91E+02	*SCDM*	2.00E-02	SCDM	2.60E-06	SCDM	6.68E-05	*SCDM*	1.51E-02	*J&E*	3.58E-06	*J&E*	8.38E+07	*SCDM*	8.06E+00	*SCDM*

Table E.2-20
Physical and Chemical Properties
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Molecular Weight (g/mol)	[ref]	Water Solubility (mg/L 25 °C)	[ref]	Vapor Pressure (mm Hg 25 °C)	[ref]	Henry's Law Constant (atm-m³/mol) (25 °C)	[ref]	Diffusivity in Air (cm²/sec)	[ref]	Diffusivity in Water (cm²/sec)	[ref]	Koc or Kd (mL/g)	[ref]	Log Kow	[ref]
Diphenylamine	1.59E+02	*CFATE*	3.57E+01	SCDM	6.68E-04	SCDM	4.96E-07	*SCDM*	1.00E-01	*est'd*	1.00E-05	*est'd*	2.64E+03	*SCDM*	3.48E+00	*SCDM*
Ethyl methanesulfonate	1.24E+02	*RAIS*	1.35E+05	RAIS	2.06E-01	RAIS	2.52E-07	*RAIS*	—	—	—	—	2.24E+01	*RAIS*	-1.70E-01	*RAIS*
Methanamine, n-methyl-n-nitroso	7.41E+01	*SCDM*	1.00E+06	SCDM	2.70E+00	SCDM	1.20E-06	*SCDM*	1.13E-01	*RAIS*	1.24E-05	*RAIS*	2.76E-01	*SCDM*	-5.70E-01	*SCDM*
2-Nitrophenol	1.39E+02	*SCDM*	2.19E+03	SCDM	1.13E-01	SCDM	9.47E-06	*SCDM*	7.15E-02	*L90-calc*	1.00E-05	*est'd*	5.50E+01	*SCDM*	1.77E+00	*SCDM*
4-Nitrophenol	1.39E+02	*SCDM*	1.16E+04	SCDM	4.10E-05	SCDM	4.15E-10	*SCDM*	4.30E-02	*RAIS*	9.61E-06	*RAIS*	4.89E+01	*SCDM*	1.94E+00	*SCDM*
n-Nitrosodi-n-propylamine	1.30E+02	*SCDM*	9.89E+03	SCDM	1.30E-01	SCDM	2.25E-06	*SCDM*	5.45E-02	*J&E*	8.17E-06	*J&E*	2.38E+01	*SCDM*	1.36E+00	*CFATE*
n-Nitrosodiphenylamine	1.98E+02	*SCDM*	3.51E+01	SCDM	6.69E-04	SCDM	5.00E-06	*SCDM*	3.12E-02	*J&E*	6.35E-06	*J&E*	1.28E+03	*SCDM*	3.16E+00	*SCDM*
n-Nitrosodiphenylamine & diphenylamine	1.59E+02	*CFATE*	3.57E+01	SCDM	6.68E-04	SCDM	4.96E-07	*SCDM*	1.00E-01	*est'd*	1.00E-05	*est'd*	2.64E+03	*SCDM*	3.48E+00	*SCDM*
Pentachlorophenol	2.66E+02	*SCDM*	1.95E+03	SCDM	3.17E-05	SCDM	2.44E-08	*SCDM*	5.60E-02	*J&E*	6.10E-06	*J&E*	5.92E+02	*SCDM*	5.09E+00	*SCDM*
Phenol	9.41E+01	*SCDM*	8.28E+04	SCDM	2.76E-01	SCDM	3.97E-07	*SCDM*	8.20E-02	*J&E*	9.10E-06	*J&E*	2.85E+01	*SCDM*	1.48E+00	*SCDM*
1,2,4,5-Tetrachlorobenzene	2.16E+02	*NMED*	5.95E-01	NMED	5.40E-03	RAIS	1.00E-03	*NMED*	2.11E-02	*NMED*	8.76E-06	*NMED*	1.19E+03	*NMED*	4.64E+00	*RAIS*
3,5,5-Trimethyl-2-cyclohexene-1-one	1.38E+02	*SCDM*	1.20E+04	SCDM	4.38E-01	SCDM	6.64E-06	*SCDM*	6.23E-02	*J&E*	6.76E-06	*J&E*	4.69E+01	*SCDM*	1.67E+00	*CFATE*
1,3,5-Trinitrobenzene	2.13E+02	*SCDM*	3.50E+02	SCDM	1.97E-05	SCDM	1.60E-08	*SCDM*	1.94E-02	*L90-calc*	1.00E-05	*est'd*	1.45E+01	*SCDM*	1.18E+00	*SCDM*
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	1.54E+02	*HSDB*	3.57E+00	J&E	2.50E-03	SCDM	1.55E-04	*J&E*	4.21E-02	*J&E*	7.69E-06	*J&E*	7.08E+03	*J&E*	3.92E+00	*CFATE*
Anthracene	1.78E+02	*SCDM*	4.34E-02	SCDM	2.67E-06	SCDM	6.50E-05	*SCDM*	3.24E-02	*J&E*	7.74E-06	*J&E*	2.97E+04	*SCDM*	4.45E+00	*CFATE*
Benzo(a)anthracene	2.28E+02	*CFATE*	9.40E-03	CFATE	1.05E-07	CFATE	3.35E-06	*CFATE*	5.10E-02	*SSG2*	9.00E-06	*SSG2*	3.98E+05	*SSG2*	5.66E+00	*CFATE*
Benzo(a)pyrene	2.52E+02	*CFATE*	1.62E-03	CFATE	5.49E-09	CFATE	1.13E-06	*CFATE*	4.30E-02	*SSG2*	9.00E-06	*SSG2*	1.02E+06	*SSG2*	5.97E+00	*CFATE*
Benzo(b)fluoranthene	2.52E+02	*CFATE*	1.50E-03	J&E	5.00E-07	CFATE	1.11E-04	*J&E*	2.26E-02	*J&E*	5.56E-06	*J&E*	1.23E+06	*J&E*	6.12E+00	*CFATE*
Benzo(g,h,i)perylene	2.76E+02	*SCDM*	2.60E-04	SCDM	1.01E-10	SCDM	1.41E-07	*SCDM*	4.20E-02	*L90-calc*	4.81E-06	*L90-calc*	3.86E+06	*SCDM*	6.58E+00	*CFATE*
Benzo(k)fluoranthene	2.52E+02	*SCDM*	8.00E-04	SCDM	2.00E-09	SCDM	8.29E-07	*SCDM*	2.26E-02	*J&E*	5.56E-06	*J&E*	1.24E+06	*SCDM*	6.20E+00	*SCDM*
1,2-Benzphenanthracene	2.28E+02	*SCDM*	6.30E-03	J&E	6.23E-09	SCDM	9.44E-05	*J&E*	2.48E-02	*J&E*	6.21E-06	*J&E*	3.98E+05	*J&E*	5.70E+00	*SCDM*
Dibenz(a,h)anthracene	2.78E+02	*CFATE*	2.49E-03	CFATE	1.00E-10	CFATE	1.47E-08	*CFATE*	2.02E-02	*J&E*	5.18E-06	*J&E*	3.80E+06	*SSG2*	6.50E+00	*CFATE*
Fluoranthene	2.02E+02	*SCDM*	2.06E-01	SCDM	7.80E-06	SCDM	1.61E-05	*SCDM*	3.02E-02	*J&E*	6.35E-06	*J&E*	1.08E+05	*SCDM*	4.95E+00	*CFATE*
Fluorene	1.66E+02	*SCDM*	1.98E+00	J&E	6.33E-04	SCDM	6.34E-05	*J&E*	3.63E-02	*J&E*	7.88E-06	*J&E*	1.38E+04	*J&E*	4.18E+00	*CFATE*
Indeno(1,2,3-cd)pyrene	2.76E+02	*CFATE*	2.20E-05	CFATE	1.00E-10	CFATE	1.60E-06	*CFATE*	1.90E-02	*SSG2*	5.66E-06	*SSG2*	3.47E+06	*SSG2*	6.58E+00	*CFATE*
1-Methylnaphthalene	1.42E+02	*HSDB*	2.58E+01	HSDB	5.40E-02	HSDB	2.60E-04	*HSDB*	4.80E-02	*RAIS*	7.84E-06	*RAIS*	1.15E+04	*RAIS*	3.87E+00	*HSDB*
2-Methylnaphthalene	1.42E+02	*SCDM*	2.46E+01	J&E	5.50E-02	SCDM	5.17E-04	*J&E*	5.22E-02	*J&E*	7.75E-06	*J&E*	2.81E+03	*J&E*	3.94E+00	*SCDM*
Naphthalene	1.28E+02	*SCDM*	3.10E+01	J&E	8.50E-02	SCDM	4.82E-04	*J&E*	5.90E-02	*J&E*	7.50E-06	*J&E*	2.00E+03	*J&E*	3.30E+00	*CFATE*
Phenanthrene	1.78E+02	*SCDM*	1.15E+00	SCDM	1.12E-04	SCDM	2.33E-05	*SCDM*	5.43E-02	*L90-calc*	5.85E-06	*L90-calc*	2.97E+04	*SCDM*	4.46E+00	*CFATE*
Pyrene	2.02E+02	*SCDM*	1.35E+00	J&E	4.59E-06	SCDM	1.10E-05	*J&E*	2.72E-02	*J&E*	7.24E-06	*J&E*	1.05E+05	*J&E*	4.88E+00	*CFATE*
Dioxin/Furan Compounds																
Herbicides																
2,4-D	2.21E+02	*SCDM*	6.77E+02	SCDM	6.00E-07	SCDM	1.02E-08	*SCDM*	2.31E-02	*RAIS*	7.31E-06	*RAIS*	1.66E+02	*SCDM*	2.70E+00	*SCDM*
2,4-DB	2.49E+02	*RAIS*	4.60E+01	RAIS	6.37E-05	RAIS	5.71E-09	*RAIS*	—	—	—	—	1.00E+02	*RAIS*	3.53E+00	*RAIS*
2,4,5-T	2.55E+02	*RAIS*	2.78E+02	RAIS	3.75E-05	RAIS	4.55E-08	*RAIS*	—	—	—	—	4.86E+01	*RAIS*	3.31E+00	*RAIS*
2,4,5-TP (Silvex)	2.70E+02	*RAIS*	2.00E+02	RAIS	2.58E-06	RAIS	8.81E-09	*RAIS*	—	—	—	—	8.04E+01	*RAIS*	3.80E+00	*RAIS*
Pesticides																
Aldrin	3.65E+02	*SCDM*	1.70E-02	J&E	6.00E-06	SCDM	1.70E-04	*J&E*	1.32E-02	*J&E*	4.86E-06	*J&E*	2.45E+06	*J&E*	3.01E+00	*CFATE*
Basudin, neocidol	3.04E+02	*RAIS*	4.00E+01	RAIS	9.01E-05	RAIS	1.10E-07	*RAIS*	—	—	—	—	1.34E+03	*RAIS*	3.81E+00	*RAIS*
beta-BHC	2.91E+02	*SCDM*	2.40E-01	SCDM	4.66E-07	SCDM	7.43E-07	*SCDM*	1.42E-02	*J&E*	7.34E-06	*J&E*	1.26E+03	*SCDM*	3.78E+00	*CFATE*
Chlordane	4.10E+02	*SCDM*	5.60E-02	J&E	9.98E-06	EPI	4.85E-05	*J&E*	1.18E-02	*J&E*	4.37E-06	*J&E*	1.20E+05	*J&E*	5.54E+00	*CFATE*
4,4-DDD	3.20E+02	*SCDM*	9.00E-02	SCDM	6.70E-07	SCDM	4.00E-06	*SCDM*	1.69E-02	*J&E*	4.76E-06	*J&E*	9.92E+05	*SCDM*	5.80E+00	*CFATE*
4,4-DDE	3.18E+02	*SCDM*	1.20E-01	J&E	6.00E-06	SCDM	2.09E-05	*J&E*	1.44E-02	*J&E*	5.87E-06	*J&E*	4.47E+06	*J&E*	5.69E+00	*CFATE*
4,4-DDT	3.54E+02	*SCDM*	2.50E-02	SCDM	1.60E-07	SCDM	8.10E-06	*SCDM*	1.37E-02	*J&E*	4.95E-06	*J&E*	2.63E+06	*SCDM*	6.36E+00	*CFATE*
delta-BHC	2.91E+02	*SCDM*	3.14E+01	SCDM	3.52E-05	SCDM	4.29E-07	*SCDM*	5.58E-02	*RAIS*	5.20E-06	*L90-calc*	1.17E+04	*RAIS*	4.14E+00	*SCDM*
Dieldrin	3.81E+02	*CFATE*	1.95E-01	J&E	5.89E-06	CFATE	1.51E-05	*J&E*	1.25E-02	*J&E*	4.74E-06	*J&E*	2.14E+04	*J&E*	4.55E+00	*CFATE*
Endosulfan II	4.07E+02	*SCDM*	2.80E-01	HSDB	6.00E-07	EPI	4.29E-07	*EPI*	4.72E-02	*L90-calc*	4.55E-06	*J&E*	2.20E+04	*EPI*	3.83E+00	*EPI*
Endrin	3.81E+02	*SCDM*	2.50E-01	SCDM	3.00E-06	SCDM	7.52E-06	*SCDM*	1.25E-02	*J&E*	4.74E-06	*J&E*	1.23E+04	*SCDM*	4.56E+00	*CFATE*
Endrin aldehyde	3.81E+02	*EPI*	3.13E+00	SCDM	2.00E-07	EPI	2.90E-09	*HSDB*	4.64E-02	*L90-calc*	1.00E-05	*est'd*	8,500—–—45,000	*HSDB*	4.80E+00	*EPI*
gamma-BHC	2.91E+02	*SCDM*	7.30E+00	J&E	4.10E-04	SCDM	1.40E-05	*J&E*	1.42E-02	*J&E*	7.34E-06	*J&E*	1.07E+03	*J&E*	3.72E+00	*DRA*
gamma-chlordane	3.73E+02	*SCDM*	1.80E-01	J&E	4.00E-04	SCDM	1.48E+00	*J&E*	1.12E-02	*J&E*	5.69E-06	*J&E*	1.41E+06	*J&E*	4.27E+00	*CFATE*
Heptachlor epoxide	3.89E+02	*SCDM*	2.00E-01	SCDM	1.95E-05	SCDM	9.50E-06	*SCDM*	1.32E-02	*J&E*	4.23E-06	*J&E*	8.23E+04	*SCDM*	5.00E+00	*SCDM*
Polychlorinated Biphenyls																
Aroclor 1254	3.27E+02	*HSDB*	6.00E-02	RAIS	6.53E-06	EPI	1.45E-04	*EPI*	1.56E-02	*J&E*	5.00E-06	*J&E*	2.00E+05	*RAIS*	6.79E+00	*EPI*
Aroclor 1260	3.76E+02	*HSDB*	8.00E-02	RAIS	4.05E-05	HSDB	7.40E-05	*HSDB*	1.38E-02	*J&E*	4.32E-06	*J&E*	2.90E+05	*RAIS*	8.27E+00	*EPI*
Explosives																
2-Amino-4,6-dinitrotoluene	1.97E+02	*RAIS*	1.22E+03	RAIS	3.33E-06	RAIS	1.58E-10	*RAIS*	—	—	—	—	1.01E+02	*RAIS*	1.84E+00	*RAIS*
4-Amino-2,6-dinitrotoluene	1.97E+02	*RAIS*	1.22E+03	RAIS	3.65E-06	RAIS	1.58E-10	*RAIS*	—	—	—	—	1.01E+02	*RAIS*	1.84E+00	*RAIS*
2,6-Dinitrotoluene	1.82E+02	*SCDM*	1.82E+02	SCDM	5.67E-04	SCDM	7.47E-07	*SCDM*	3.27E-02	*RAIS*	7.26E-06	*RAIS*	6.89E+01	*SCDM*	1.87E+00	*SCDM*
2-Nitrotoluene	1.37E+02	*NMED*	6.50E+02	J&E	1.88E-01	RAIS	1.25E-05	*J&E*	5.87E-02	*J&E*	8.67E-06	*J&E*	3.24E+02	*J&E*	2.30E+00	*RAIS*
3-Nitrotoluene	1.37E+02	*NMED*	2.10E+03	NMED	2.05E-01	RAIS	2.40E-05	*NMED*	7.60E-02	*NMED*	8.60E-06	*NMED*	6.50E+01	*NMED*	2.45E+00	*RAIS*
4-Nitrotoluene	1.37E+02	*NMED*	2.10E+03	NMED	1.57E-02	RAIS	2.40E-05	*NMED*	7.60E-02	*NMED*	8.60E-06	*NMED*	6.50E+01	*NMED*	2.37E+00	*RAIS*

Table E.2-20
Physical and Chemical Properties
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Molecular Weight (g/mol)	[ref]	Water Solubility (mg/L 25 °C)	[ref]	Vapor Pressure (mm Hg 25 °C)	[ref]	Henry's Law Constant (atm-m³/mol) (25 °C)	[ref]	Diffusivity in Air (cm²/sec)	[ref]	Diffusivity in Water (cm²/sec)	[ref]	Koc or Kd (mL/g)	[ref]	Log Kow	[ref]
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	2.96E+02	*NMED*	2.56E+03	NMED	3.30E-14	RAIS	1.00E-11	*NMED*	—	—	—	—	1.85E+03	*NMED*	1.60E-01	*RAIS*
RDX	2.22E+02	*SCDM*	5.98E+01	SCDM	4.10E-09	HSDB	6.30E-08	*HSDB*	—	—	1.00E-05	*est'd*	7.17E+00	*SCDM*	8.70E-01	*SCDM*
Tetryl	2.87E+02	*HSDB*	75—(20—°C)	HSDB	<—1E-08	HSDB	1.00E-11	*HSDB*	—	—	1.00E-05	*est'd*	4.06E+02	*HSDB*	2.00E+00	*RAIS*
2,4,6-Trinitrotoluene	2.27E+02	*SCDM*	1.24E+02	SCDM	2.02E-06	SCDM	4.87E-09	*SCDM*	2.45E-02	*RAIS*	6.36E-06	*RAIS*	3.74E+01	*SCDM*	1.60E+00	*SCDM*
Inorganics																
Aluminum	2.70E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	1.50E+03	*Kd-SCDM*	3.30E-01	*EPI*
Antimony	1.22E+02	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	4.50E+01	*Kd-SCDM*	7.30E-01	*EPI*
Arsenic	7.49E+01	*HSDB*	insoluble	HSDB	—	—	—	—	—	—	—	—	2.90E+01	*Kd-SCDM*	6.80E-01	*SCDM*
Barium	1.37E+02	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	4.10E+01	*Kd-SCDM*	2.30E-01	*EPI*
Beryllium	9.01E+00	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	7.90E+02	*Kd-SCDM*	-5.70E-01	*EPI*
Boron	1.08E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	3.00E+00	*Kd-SCDM*	2.30E-01	*EPI*
Cadmium	1.12E+02	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	7.50E+01	*Kd-SCDM*	-7.00E-02	*EPI*
Chloride	3.55E+01	*EPI*	4.24E+04	EPI	4.16E-08	EPI	4.58E-14	*EPI*	—	—	—	—	1.43E+01	*EPI*	5.40E-01	*EPI*
Chromium	5.20E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	1.90E+01	*Kd-SCDM*	2.30E-01	*EPI*
Chromium (Hexavalent)	5.20E+01	*SCDM*	1.20E+04	RAIS	—	—	—	—	—	—	—	—	1.90E+01	*Kd-SCDM*	—	—
Cobalt	5.89E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	4.50E+01	*Kd-SCDM*	2.30E-01	*EPI*
Copper	6.35E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	4.28E+02	*Kd-SCDM*	-5.70E-01	*EPI*
Cyanide (Total)	2.70E+01	*NMED*	—	—	—	—	1.30E-04	*NMED*	—	—	—	—	9.90E+00	*NMED*	—	—
Fluoride	3.80E+01	*RAIS*	1.69E+00	RAIS	7.60E+02	RAIS	2.45E-02	*RAIS*	—	—	—	—	1.50E+02	*Kd-RAIS*	2.20E-01	*RAIS*
Iron	5.58E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	2.50E+01	*Kd-SCDM*	-7.70E-01	*EPI*
Lead	2.07E+02	*HSDB*	insoluble	SCDM	—	—	—	—	—	—	—	—	9.00E+02	*Kd-SCDM*	7.30E-01	*SCDM*
Manganese	5.49E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	6.50E+01	*Kd-SCDM*	2.30E-01	*EPI*
Mercury	2.01E+02	*RAIS*	2.00E+01	J&E	1.96E-03	RAIS	1.07E-02	*J&E*	3.07E-02	*J&E*	6.30E-06	*J&E*	5.20E+01	*J&E*	6.20E-01	*RAIS*
Molybdenum	9.59E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	2.00E+01	*Kd-SCDM*	2.30E-01	*EPI*
Nickel	5.87E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	6.50E+01	*Kd-SCDM*	-5.70E-01	*EPI*
Nitrate	6.20E+01	*EPI*	9.09E+04	EPI	8.08E-10	EPI	7.25E-16	*EPI*	—	—	—	—	1.43E+01	*EPI*	2.10E-01	*EPI*
Nitrite	4.70E+01	*EPI*	1.20E+05	EPI	8.55E-14	EPI	4.42E-20	*EPI*	—	—	—	—	2.37E+01	*EPI*	6.00E-02	*EPI*
Nitrate + Nitrite	6.20E+01	*EPI*	9.09E+04	EPI	8.08E-10	EPI	7.25E-16	*EPI*	—	—	—	—	1.43E+01	*EPI*	2.10E-01	*EPI*
Phosphorus	3.10E+01	*RAIS*	insoluble	—	3.00E-02	RAIS	—	—	—	—	—	—	—	—	—	—
Selenium	7.90E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	3.00E+02	*Kd-SCDM*	2.40E-01	*EPI*
Silver	1.08E+02	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	8.30E+00	*Kd-SCDM*	2.30E-01	*EPI*
Thallium	2.04E+02	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	1.50E+03	*Kd-SCDM*	2.30E-01	*EPI*
Tin	1.19E+02	*HSDB*	insoluble	HSDB	—	—	—	—	—	—	—	—	2.50E+02	*Kd-Bae84*	1.29E+00	*CFATE*
Titanium	4.79E+01	*HSDB*	insoluble	HSDB	—	—	—	—	—	—	—	—	1.00E+03	*Kd-Bae84*	2.30E-01	*CFATE*
Vanadium	5.09E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	1.00E+03	*Kd-SCDM*	2.30E-01	*EPI*
Zinc	6.54E+01	*SCDM*	insoluble	SCDM	—	—	—	—	—	—	—	—	6.20E+01	*Kd-SCDM*	-4.70E-01	*EPI*

References [ref]:
Baes et al. (Bae84; 1984); CFATE (SRC, 2009); DRA (USEPA, 2004a); HSDB (NLM, 2009); EPISuite (USEPA, 2004c); J&E (USEPA, 2004b); Lyman, et al. (L90, 1990); NMED (NMED, 2009a), RAIS (USDOE, 2009); SCDM (USEPA, 2004d); SSG2 (USEPA, 2002c).

–	Not applicable/ not available.
atm-m³/mol	Atmospheres × cubic meters per mole.
BCF	Bioconcentration factor.
°C	Degrees Celsius.
cm²/sec	Square centimeters per second.
calc'd	Calculated.
est'd	Estimated.
g/mol	Grams per mole.
Kd	Soil-water distribution coefficient (inorganics).
Koc	Organic carbon partition coefficient (organics).
Kow	Octanol-water partition coefficient.
L/kg	Liters per kilogram.
mg/L	Milligrams per liter.
mL/g	Milliliters per gram.
mm Hg	Millimeters of mercury.
—	Not available.
T½	Half-life.

Table E.2-21
Soil Volatilization Factors and Particulate Emission Factors
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatilization Factors: (calculated only for volatile organic compounds)

Constituent	Solubility in Water (mg/L) (S)	Saturation Limit in Soil (mg/kg) (Csat)	Diffusivity in Air (cm^2/sec) (D_{air})	Diffusivity in Water (cm^2/sec) (D_{wat})	Henry's Law Constant (atm-m^3/mol) (H)	Henry's Law Constant (unitless) (H_o)	Partition Coefficient (mL/g) (Koc)	Apparent Diffusivity (cm^2/sec) (D_A)	Volatilization Factor (m^3/kg) (VF)
Volatile Organic Compounds									
Acetone	1.00E+06	1.74E+05	1.24E-01	1.14E-05	3.87E-05	1.58E-03	5.75E-01	1.37E-05	3.36E+04
Benzene	1.79E+03	5.10E+02	8.80E-02	9.80E-06	5.54E-03	2.26E-01	5.89E+01	6.81E-04	4.76E+03
Bromomethane	1.52E+04	3.32E+03	7.28E-02	1.21E-05	6.22E-03	2.54E-01	1.05E+01	8.36E-04	4.29E+03
2-Butanone	2.23E+05	3.95E+04	8.08E-02	9.80E-06	5.58E-05	2.28E-03	2.30E+00	1.24E-05	3.52E+04
n-Butylbenzene	2.00E+00	3.80E+00	5.70E-02	8.12E-06	1.31E-02	5.36E-01	1.11E+03	1.58E-04	9.88E+03
sec-Butylbenzene	3.94E+00	6.60E+00	5.70E-02	8.12E-06	1.39E-02	5.66E-01	9.66E+02	1.88E-04	9.05E+03
Carbon disulfide	1.19E+03	4.53E+02	1.04E-01	1.00E-05	3.02E-02	1.24E+00	4.57E+01	3.30E-03	2.16E+03
Carbon tetrachloride	7.93E+02	4.60E+02	7.80E-02	8.80E-06	3.03E-02	1.24E+00	1.74E+02	1.65E-03	3.05E+03
CFC-11	1.10E+03	1.50E+03	8.70E-02	9.70E-06	9.68E-02	3.95E+00	4.97E+02	2.47E-03	2.50E+03
CFC-12	2.80E+02	6.80E+02	6.65E-02	9.92E-06	3.42E-01	1.40E+01	4.57E+02	3.73E-03	2.03E+03
Chlorinated fluorocarbon (Freon 113)	1.70E+02	3.20E+03	7.80E-02	8.20E-06	4.80E-01	1.96E+01	1.11E+04	7.85E-04	4.43E+03
Chlorobenzene	4.72E+02	2.40E+02	7.30E-02	8.70E-06	3.69E-03	1.51E-01	2.19E+02	2.09E-04	8.59E+03
Chlorodibromomethane	2.60E+03	7.10E+02	1.96E-02	1.05E-05	7.81E-04	3.19E-02	6.31E+01	2.42E-05	—
Chloroethane	5.68E+03	1.25E+03	2.71E-01	1.15E-05	8.80E-03	3.60E-01	4.40E+00	4.33E-03	1.89E+03
Chloroform	7.92E+03	1.98E+03	1.04E-01	1.00E-05	3.66E-03	1.50E-01	3.98E+01	6.12E-04	5.02E+03
Chloromethane	5.33E+03	1.16E+03	1.26E-01	6.50E-06	8.80E-03	3.60E-01	2.12E+00	2.05E-03	2.74E+03
2-Chlorophenol	2.20E+04	1.70E+04	5.01E-02	9.46E-06	3.90E-04	1.59E-02	3.88E+02	1.09E-05	3.77E+04
Cymene	2.34E+01	5.20E+01	7.84E-02	6.12E-06	1.10E-02	4.50E-01	1.32E+03	1.56E-04	9.92E+03
Dibenzofuran	3.10E+00	—	2.38E-02	6.00E-06	1.26E-05	5.14E-04	5.15E+03	4.59E-08	5.79E+05
1,3-Dichlorobenzene	1.34E+02	4.20E+02	6.92E-02	7.86E-06	3.09E-03	1.26E-01	1.98E+03	2.73E-05	2.37E+04
1,4-Dichlorobenzene	7.90E+01	—	6.90E-02	7.90E-06	2.39E-03	9.78E-02	6.17E+02	6.00E-05	1.60E+04
1,1-Dichloroethane	5.06E+03	1.25E+03	7.42E-02	1.05E-05	5.61E-03	2.29E-01	3.16E+01	6.78E-04	4.77E+03
1,2-Dichloroethane	8.52E+03	1.74E+03	1.04E-01	9.90E-06	9.77E-04	3.99E-02	1.74E+01	2.02E-04	8.74E+03
1,1-Dichloroethylene	2.25E+03	8.60E+02	9.00E-02	1.04E-05	2.60E-02	1.06E+00	5.89E+01	2.46E-03	2.50E+03
Dichloromethane	1.30E+04	2.62E+03	1.01E-01	1.17E-05	2.18E-03	8.93E-02	1.17E+01	4.43E-04	5.90E+03
Ethanol	7.92E+05	1.39E+05	1.35E-01	1.20E-05	4.66E-06	1.90E-04	1.00E+00	4.21E-06	—
Ethylbenzene	1.69E+02	1.27E+02	7.50E-02	7.80E-06	7.86E-03	3.21E-01	3.63E+02	3.14E-04	7.01E+03
Isopropylbenzene	6.13E+01	6.00E+01	6.50E-02	7.10E-06	1.46E-02	5.97E-01	4.89E+02	3.91E-04	6.28E+03
Toluene	5.26E+02	2.50E+02	8.70E-02	8.60E-06	6.62E-03	2.71E-01	1.82E+02	4.85E-04	5.64E+03
Methyl tert-Butyl Ether (MTBE)	5.10E+04	9.54E+03	1.02E-01	1.05E-05	6.23E-04	2.55E-02	7.26E+00	1.39E-04	1.05E+04
Nitrobenzene	2.09E+03	5.70E+02	7.60E-02	8.60E-06	2.39E-05	9.78E-04	6.46E+01	3.99E-06	6.22E+04
n-Propylbenzene	6.00E+01	6.40E+01	6.01E-02	7.83E-06	1.07E-02	4.35E-01	5.62E+02	2.41E-04	7.99E+03
Styrene (monomer)	3.10E+02	4.20E+02	7.10E-02	8.00E-06	2.74E-03	1.12E-01	7.76E+02	5.81E-05	1.63E+04
Tetrachloroethene	2.00E+02	9.80E+01	7.20E-02	8.20E-06	1.84E-02	7.50E-01	1.55E+02	1.08E-03	3.78E+03
1,1,2,2-Tetrachloroethane	2.96E+03	9.30E+02	7.10E-02	7.90E-06	3.44E-04	1.41E-02	9.33E+01	3.21E-05	2.19E+04
1,1,1-Trichloroethane	1.33E+03	5.60E+02	7.80E-02	8.80E-06	1.72E-02	7.01E-01	1.10E+02	1.29E-03	3.46E+03

Table E.2-21
Soil Volatilization Factors and Particulate Emission Factors
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatilization Factors: (calculated only for volatile organic compounds)

Constituent	Solubility in Water (mg/L) (S)	Saturation Limit in Soil (mg/kg) (Csat)	Diffusivity in Air (cm^2/sec) (D_{air})	Diffusivity in Water (cm^2/sec) (D_{wat})	Henry's Law Constant (atm-m^3/mol) (H)	Henry's Law Constant (unitless) (H_o)	Partition Coefficient (mL/g) (Koc)	Apparent Diffusivity (cm^2/sec) (D_A)	Volatilization Factor (m^3/kg) (VF)
1,2,3-Trichlorobenzene	1.80E+01	—	3.00E-02	8.23E-06	1.25E-03	5.11E-02	1.78E+03	5.40E-06	5.34E+04
1,2,3-Trichloropropane	1.75E+03	3.64E+02	7.10E-02	7.90E-06	4.08E-04	1.67E-02	2.20E+01	5.73E-05	1.64E+04
1,2,4-Trichlorobenzene	4.88E+01	1.40E+02	3.00E-02	8.23E-06	1.42E-03	5.79E-02	1.78E+03	6.10E-06	5.03E+04
1,2,4-Trimethylbenzene	5.70E+01	1.30E+02	6.06E-02	7.92E-06	6.14E-03	2.51E-01	1.35E+03	6.71E-05	1.52E+04
1,3,5-Trimethylbenzene	2.00E+00	4.50E+00	6.02E-02	8.67E-06	5.87E-03	2.40E-01	1.35E+03	6.37E-05	1.55E+04
Trichloroethylene	1.47E+03	6.90E+02	7.90E-02	9.10E-06	1.03E-02	4.20E-01	1.66E+02	6.93E-04	4.71E+03
Vinyl chloride	8.80E+03	2.87E+03	1.06E-01	1.23E-05	2.69E-02	1.10E+00	1.86E+01	3.51E-03	2.09E+03
m,p-Xylene	1.61E+02	1.32E+02	7.00E-02	7.80E-06	7.32E-03	2.99E-01	4.07E+02	2.52E-04	7.82E+03
o-Xylene	1.78E+02	1.32E+02	8.70E-02	1.00E-05	5.18E-03	2.12E-01	3.63E+02	2.44E-04	7.95E+03
Xylenes	1.75E+02	7.80E+01	7.14E-02	9.34E-06	6.63E-03	2.71E-01	1.60E+02	4.28E-04	6.00E+03
Semi Volatile Organic Compounds									
Benzidine	5.00E+02	—	3.40E-02	1.50E-05	3.88E-11	1.59E-09	1.55E+02	1.49E-06	—
Benzoic acid	3.50E+03	—	5.36E-02	7.97E-06	1.54E-06	6.29E-05	6.00E-01	2.04E-06	—
Benzyl butyl phthalate	2.69E+00	2.30E+02	1.74E-02	4.83E-06	1.26E-06	5.15E-05	5.73E+04	2.37E-09	—
Bis(2-ethylhexyl)phthalate	3.40E-01	4.50E+01	3.51E-02	3.66E-06	1.02E-07	4.17E-06	8.74E+04	1.14E-09	—
Carbazole	7.48E+00	—	3.90E-02	7.03E-06	1.53E-08	6.25E-07	3.38E+03	5.43E-08	—
p-Chloroaniline	5.30E+03	—	4.83E-02	1.01E-05	3.31E-07	1.35E-05	6.59E+01	1.52E-06	—
4-Chloro-3-methylphenol	3.85E+03	—	6.80E-02	1.00E-05	3.99E-07	1.63E-05	1.12E+03	2.24E-07	—
Dichlorvos (DDVP)	8.00E+03	6.20E+03	—	—	5.60E-07	2.29E-05	4.02E+02	—	—
Diethyl phthalate	1.08E+03	6.50E+02	2.56E-02	6.35E-06	4.50E-07	1.84E-05	2.87E+02	4.33E-07	—
2,4-Dinitrotoluene	2.70E+02	—	2.03E-01	7.06E-06	9.26E-08	3.78E-06	9.46E+01	9.30E-07	—
a,a-Dimethylphenethylamine	1.86E+04	4.70E+04	6.75E-02	7.89E-06	1.39E-06	5.68E-05	1.58E+03	1.40E-07	—
Dimethyl phthalate	4.00E+03	9.00E+02	5.68E-02	6.29E-06	1.05E-07	4.29E-06	3.50E+01	1.14E-06	—
Di-n-butyl phthalate	1.12E+01	5.70E+02	4.38E-02	7.86E-06	9.38E-10	3.83E-08	3.40E+04	6.21E-09	—
m-Dinitrobenzene	8.61E+02	—	2.79E-01	7.64E-06	2.31E-07	9.44E-06	2.98E+01	1.54E-06	—
Di-n-octyl phthalate	2.00E-02	2.50E+03	1.51E-02	3.58E-06	6.68E-05	2.73E-03	8.38E+07	4.37E-12	—
Diphenylamine	3.57E+01	—	1.00E-01	1.00E-05	4.96E-07	2.03E-05	2.64E+03	1.03E-07	—
Ethyl methanesulfonate	1.35E+05	2.79E+04	—	—	2.52E-07	1.03E-05	2.24E+01	—	—
Methanamine, n-methyl-n-nitroso	1.00E+06	1.74E+05	1.13E-01	1.24E-05	1.20E-06	4.90E-05	2.76E-01	3.20E-06	—
2-Nitrophenol	2.19E+03	—	7.15E-02	1.00E-05	9.47E-06	3.87E-04	5.50E+01	2.64E-06	—
4-Nitrophenol	1.16E+04	—	4.30E-02	9.61E-06	4.15E-10	1.70E-08	4.89E+01	1.58E-06	—
n-Nitrosodi-n-propylamine	9.89E+03	2.07E+03	5.45E-02	8.17E-06	2.25E-06	9.19E-05	2.38E+01	1.82E-06	—
n-Nitrosodiphenylamine	3.51E+01	—	3.12E-02	6.35E-06	5.00E-06	2.04E-04	1.28E+03	1.53E-07	—
n-Nitrosodiphenylamine & diphenylamine	3.57E+01	—	1.00E-01	1.00E-05	4.96E-07	2.03E-05	2.64E+03	1.03E-07	—
Pentachlorophenol	1.95E+03	—	5.60E-02	6.10E-06	2.44E-08	9.97E-07	5.92E+02	2.33E-07	—
Phenol	8.28E+04	—	8.20E-02	9.10E-06	3.97E-07	1.62E-05	2.85E+01	1.76E-06	—
1,2,4,5-Tetrachlorobenzene	5.95E-01	—	2.11E-02	8.76E-06	1.00E-03	4.09E-02	1.19E+03	4.49E-06	—

Table E.2-21
Soil Volatilization Factors and Particulate Emission Factors
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatilization Factors: (calculated only for volatile organic compounds)

Constituent	Solubility in Water (mg/L) (S)	Saturation Limit in Soil (mg/kg) (Csat)	Diffusivity in Air (cm^2/sec) (D_{air})	Diffusivity in Water (cm^2/sec) (D_{wat})	Henry's Law Constant (atm-m^3/mol) (H)	Henry's Law Constant (unitless) (H_o)	Partition Coefficient (mL/g) (Koc)	Apparent Diffusivity (cm^2/sec) (D_A)	Volatilization Factor (m^3/kg) (VF)
3,5,5-Trimethyl-2-cyclohexene-1-one	1.20E+04	2.92E+03	6.23E-02	6.76E-06	6.64E-06	2.71E-04	4.69E+01	1.80E-06	—
1,3,5-Trinitrobenzene	3.50E+02	—	1.94E-02	1.00E-05	1.60E-08	6.54E-07	1.45E+01	2.07E-06	—
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	3.57E+00	—	4.21E-02	7.69E-06	1.55E-04	6.32E-03	7.08E+03	2.71E-07	2.39E+05
Anthracene	4.34E-02	—	3.24E-02	7.74E-06	6.50E-05	2.66E-03	2.97E+04	2.59E-08	7.72E+05
Benzo(a)anthracene	9.40E-03	—	5.10E-02	9.00E-06	3.35E-06	1.37E-04	3.98E+05	7.24E-10	—
Benzo(a)pyrene	1.62E-03	—	4.30E-02	9.00E-06	1.13E-06	4.62E-05	1.02E+06	2.51E-10	—
Benzo(b)fluoranthene	1.50E-03	—	2.26E-02	5.56E-06	1.11E-04	4.52E-03	1.23E+06	6.66E-10	—
Benzo(g,h,i)perylene	2.60E-04	—	4.20E-02	4.81E-06	1.41E-07	5.76E-06	3.86E+06	3.40E-11	—
Benzo(k)fluoranthene	8.00E-04	—	2.26E-02	5.56E-06	8.29E-07	3.39E-05	1.24E+06	1.25E-10	—
1,2-Benzphenanthracene	6.30E-03	—	2.48E-02	6.21E-06	9.44E-05	3.86E-03	3.98E+05	1.99E-09	—
Dibenz(a,h)anthracene	2.49E-03	—	2.02E-02	5.18E-06	1.47E-08	6.01E-07	3.80E+06	3.68E-11	—
Fluoranthene	2.06E-01	—	3.02E-02	6.35E-06	1.61E-05	6.58E-04	1.08E+05	2.79E-09	—
Fluorene	1.98E+00	—	3.63E-02	7.88E-06	6.34E-05	2.59E-03	1.38E+04	5.95E-08	5.09E+05
Indeno(1,2,3-cd)pyrene	2.20E-05	—	1.90E-02	5.66E-06	1.60E-06	6.54E-05	3.47E+06	4.63E-11	—
1-Methylnaphthalene	2.58E+01	4.50E+02	4.80E-02	7.84E-06	2.60E-04	1.06E-02	1.15E+04	3.04E-07	2.25E+05
2-Methylnaphthalene	2.46E+01	—	5.22E-02	7.75E-06	5.17E-04	2.11E-02	2.81E+03	2.53E-06	7.80E+04
Naphthalene	3.10E+01	—	5.90E-02	7.50E-06	4.82E-04	1.97E-02	2.00E+03	3.69E-06	6.47E+04
Phenanthrene	1.15E+00	—	5.43E-02	5.85E-06	2.33E-05	9.52E-04	2.97E+04	1.66E-08	9.62E+05
Pyrene	1.35E+00	—	2.72E-02	7.24E-06	1.10E-05	4.48E-04	1.05E+05	2.62E-09	—
Herbicides									
2,4-D	6.77E+02	—	2.31E-02	7.31E-06	1.02E-08	4.17E-07	1.66E+02	7.00E-07	—
2,4-DB	4.60E+01	—	—	—	5.71E-09	2.33E-07	1.00E+02	—	—
2,4,5-T	2.78E+02	—	—	—	4.55E-08	1.86E-06	4.86E+01	—	—
2,4,5-TP (Silvex)	2.00E+02	—	—	—	8.81E-09	3.60E-07	8.04E+01	—	—
Pesticides									
Aldrin	1.70E-02	—	1.32E-02	4.86E-06	1.70E-04	6.93E-03	2.45E+06	2.98E-10	—
Basudin, neocidol	4.00E+01	—	—	—	1.10E-07	4.50E-06	1.34E+03	—	—
beta-BHC	2.40E-01	—	1.42E-02	7.34E-06	7.43E-07	3.04E-05	1.26E+03	1.46E-07	—
Chlordane	5.60E-02	—	1.18E-02	4.37E-06	4.85E-05	1.98E-03	1.20E+05	2.25E-09	—
4,4-DDD	9.00E-02	—	1.69E-02	4.76E-06	4.00E-06	1.63E-04	9.92E+05	1.48E-10	—
4,4-DDE	1.20E-01	—	1.44E-02	5.87E-06	2.09E-05	8.56E-04	4.47E+06	5.34E-11	—
4,4-DDT	2.50E-02	—	1.37E-02	4.95E-06	8.10E-06	3.31E-04	2.63E+06	6.20E-11	—
delta-BHC	3.14E+01	—	5.58E-02	5.20E-06	4.29E-07	1.75E-05	1.17E+04	1.24E-08	—
Dieldrin	1.95E-01	—	1.25E-02	4.74E-06	1.51E-05	6.16E-04	2.14E+04	8.28E-09	—
Endosulfan II	2.80E-01	—	4.72E-02	4.55E-06	4.29E-07	1.75E-05	2.20E+04	5.79E-09	—
Endrin	2.50E-01	—	1.25E-02	4.74E-06	7.52E-06	3.07E-04	1.23E+04	1.23E-08	—

Table E.2-21
Soil Volatilization Factors and Particulate Emission Factors
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatilization Factors: (calculated only for volatile organic compounds)

Constituent	Solubility in Water (mg/L) (S)	Saturation Limit in Soil (mg/kg) (Csat)	Diffusivity in Air (cm^2/sec) (D_{air})	Diffusivity in Water (cm^2/sec) (D_{wat})	Henry's Law Constant (atm-m^3/mol) (H)	Henry's Law Constant (unitless) (H_o)	Partition Coefficient (mL/g) (Koc)	Apparent Diffusivity (cm^2/sec) (D_A)	Volatilization Factor (m^3/kg) (VF)
Endrin aldehyde	3.13E+00	—	4.64E-02	1.00E-05	2.90E-09	1.19E-07	,500—-—45,0(	—	—
gamma-BHC	7.30E+00	—	1.42E-02	7.34E-06	1.40E-05	5.71E-04	1.07E+03	2.12E-07	—
Heptachlor	1.80E-01	—	1.12E-02	5.69E-06	1.48E+00	6.03E+01	1.41E+06	3.12E-06	—
Heptachlor epoxide	2.00E-01	—	1.32E-02	4.23E-06	9.50E-06	3.88E-04	8.23E+04	1.79E-09	—
Polychlorinated Biphenyls									
Aroclor 1254	6.00E-02	—	1.56E-02	5.00E-06	1.45E-04	5.93E-03	2.00E+05	3.70E-09	—
Aroclor 1260	8.00E-02	—	1.38E-02	4.32E-06	7.40E-05	3.02E-03	2.90E+05	1.34E-09	—
Explosives									
2-Amino-4,6-dinitrotoluene	1.22E+03	—	—	—	1.58E-10	6.46E-09	1.01E+02	—	—
4-Amino-2,6-dinitrotoluene	1.22E+03	—	—	—	1.58E-10	6.46E-09	1.01E+02	—	—
2,6-Dinitrotoluene	1.82E+02	—	3.27E-02	7.26E-06	7.47E-07	3.05E-05	6.89E+01	1.10E-06	—
2-Nitrotoluene	6.50E+02	—	5.87E-02	8.67E-06	1.25E-05	5.10E-04	3.24E+02	9.78E-07	1.26E+05
3-Nitrotoluene	2.10E+03	—	7.60E-02	8.60E-06	2.40E-05	9.81E-04	6.50E+01	3.98E-06	6.22E+04
4-Nitrotoluene	2.10E+03	—	7.60E-02	8.60E-06	2.40E-05	9.81E-04	6.50E+01	3.98E-06	6.22E+04
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	2.56E+03	—	—	—	1.00E-11	4.09E-10	1.85E+03	—	—
RDX	5.98E+01	—	—	1.00E-05	6.30E-08	2.57E-06	7.17E+00	—	—
Tetryl	75—(20—°C)	—	—	1.00E-05	1.00E-11	4.09E-10	4.06E+02	—	—
2,4,6-Trinitrotoluene	1.24E+02	—	2.45E-02	6.36E-06	4.87E-09	1.99E-07	3.74E+01	1.12E-06	—
Inorganics									
Aluminum	insoluble	—	—	—	—	—	1.50E+03	—	—
Antimony	insoluble	—	—	—	—	—	4.50E+01	—	—
Arsenic	insoluble	—	—	—	—	—	2.90E+01	—	—
Barium	insoluble	—	—	—	—	—	4.10E+01	—	—
Beryllium	insoluble	—	—	—	—	—	7.90E+02	—	—
Boron	insoluble	—	—	—	—	—	3.00E+00	—	—
Cadmium	insoluble	—	—	—	—	—	7.50E+01	—	—
Chromium	insoluble	—	—	—	—	—	1.90E+01	—	—
Cobalt	insoluble	—	—	—	—	—	4.50E+01	—	—
Copper	insoluble	—	—	—	—	—	4.28E+02	—	—
Cyanide (Total)	—	—	—	—	1.30E-04	5.31E-03	9.90E+00	—	—
Fluoride	1.69E+00	—	—	—	2.45E-02	1.00E+00	1.50E+02	—	—
Iron	insoluble	—	—	—	—	—	2.50E+01	—	—
Lead	insoluble	—	—	—	—	—	9.00E+02	—	—
Manganese	insoluble	—	—	—	—	—	6.50E+01	—	—
Mercury	2.00E+01	—	3.07E-02	6.30E-06	1.07E-02	4.38E-01	5.20E+01	4.40E-04	—
Molybdenum	insoluble	—	—	—	—	—	2.00E+01	—	—
Nickel	insoluble	—	—	—	—	—	6.50E+01	—	—

Table E.2-21
Soil Volatilization Factors and Particulate Emission Factors
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatilization Factors: (calculated only for volatile organic compounds)

Constituent	Solubility in Water (mg/L) (S)	Saturation Limit in Soil (mg/kg) (Csat)	Diffusivity in Air (cm^2/sec) (D_{air})	Diffusivity in Water (cm^2/sec) (D_{wat})	Henry's Law Constant (atm-m^3/mol) (H)	Henry's Law Constant (unitless) (H_o)	Partition Coefficient (mL/g) (Koc)	Apparent Diffusivity (cm^2/sec) (D_A)	Volatilization Factor (m^3/kg) (VF)
Nitrate	9.09E+04	—	—	—	7.25E-16	2.96E-14	1.43E+01	—	—
Nitrate + Nitrite	9.09E+04	—	—	—	7.25E-16	2.96E-14	1.43E+01	—	—
Selenium	insoluble	—	—	—	—	—	3.00E+02	—	—
Silver	insoluble	—	—	—	—	—	8.30E+00	—	—
Thallium	insoluble	—	—	—	—	—	1.50E+03	—	—
Tin	insoluble	—	—	—	—	—	2.50E+02	—	—
Titanium	insoluble	—	—	—	—	—	1.00E+03	—	—
Vanadium	insoluble	—	—	—	—	—	1.00E+03	—	—
Zinc	insoluble	—	—	—	—	—	6.20E+01	—	—

Particulate Emission Factor:

PEFcw =	2.10E+06	m^3/kg	Particulate emission factor (m^3/kg) during soil invasive actvities scenarios
PEF =	6.61E+09	m^3/kg	Particulate emission factor (m^3/kg) under passive conditions

Model Input Parameters:

x =	2.495	unitless	Function of Ut/Um; x = 0.886 × (Ut/Um)
Fx =	0.0553	unitless	Function dependent on Um/Ut derived using Cowherd et al. (1985) (NMED, 2009a, default).
Foc =	0.0015	unitless	Fraction organic carbon (NMED, 2009a, default)
ρ_b =	1.5	g/cm^3	Soil dry bulk density (NMED, 2009a; default)
θ_T =	0.43	unitless	Total soil porosity (NMED, 2009a; default)
θ_{as} =	0.17	unitless	Air-filled soil porosity [= θ_T - θ_{ws}]
θ_{ws} =	0.26	unitless	Water-filled soil porosity (NMED, 2009a; default)
Q/C_{vol} =	68.18	(g/m^2/sec)/(kg/m^3)	Volatilization flux per unit concentration (NMED, 2009a; default)
Q/C_{wind} =	81.85	(g/m^2/sec)/(kg/m^3)	Wind-related particulate emission flux per unit concentration (NMED 2009a; default)
RPF =	0.036	g/m^2/hour	Respirable particle fraction (USEPA, 2002).
T =	9.5E+08	sec	Exposure interval (NMED, 2009a; default)
Um =	4.02	m/sec	Mean annual wind speed for Alamogordo, New Mexico (NMED, 2009a; default)
Ut =	11.32	m/sec	Equivalent threshold value of windspeed at 7 meters (NMED, 2009a; default)
V =	0.5	unitless	Fraction vegetative cover (NMED, 2009a; default)

—	Not available.	kg	Kilogram.	mL	Milliliter.
atm	Atmosphere.	L	Liter.	mol	Mole.
cm	Centimeter.	m	Meter.	sec	Second.
g	Gram.	mg	Milligram.		

NMED = New Mexico Environmental Department (NMED), 2009a. Technical Background Document for Development of Soil Screening Levels. August, 2009.

Table E.2-22
Ecological Screening Levels
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
Volatile Organic Compounds						
Acetaldehyde	–		NA		no	PJ
Acetone	–		2.50E+00	R5	no	PJ
Acetonitrile	–		1.37E+00	R5	no	PJ
Acetophenone	–		3.00E+02	R5	no	PJ
Acrolein	–		5.27E+00	R5	no	PJ
Acrylonitrile	–		1.00E+03	R4	no	PJ
Ally chloride	–		1.34E-02	R5	no	PJ
Benzene	–		5.00E-02	R4	no	PJ
Bis(2-chloroethyl)ether	–		2.37E+01	R5	no	PJ
Bis(2-chloro-1-methylethyl)ether	–		1.99E+01	R5	no	PJ
Bis(2-chloroisopropyl)ether	–		NA		no	PJ
Bromobenzene	–		NA		no	PJ
Bromodichloromethane	–		5.40E-01	R5	no	PJ
Bromomethane	–		2.35E-01	R5	no	PJ
2-Butanone	–		8.96E+01	R5	no	PJ
tert-Butyl alcohol	–		NA		no	PJ
n-Butylbenzene	–		NA		no	PJ
sec-Butylbenzene	–		NA		no	PJ
tert-Butylbenzene	–		NA		no	PJ
Carbon disulfide	–		9.41E-02	R5	no	PJ
Carbon tetrachloride	–		1.00E+03	R4	no	PJ
CFC-11	–		1.64E+01	R5	no	PJ
CFC-12	–		3.95E+01	R5	no	PJ
Chlorinated fluorocarbon (Freon 113)	–		NA		no	PJ
Chlorobenzene	–		5.00E-02	R4	no	PJ
Chlorobromomethane	–		NA		no	PJ
2-Chlor-1,3-butadiene	–		2.90E-03	R5	no	PJ
Chlorodibromomethane	–		2.05E+00	R5	no	PJ
Chloroethane	–		NA		no	PJ
2-Chloroethyl vinyl ether	–		NA		no	PJ
Chloroform	–		1.00E-03	R4	no	PJ
Chloromethane	–		1.04E+01	R5	no	PJ
2-Chlorophenol	–		2.43E-01	R5	no	PJ
2-Chlorotoluene	–		NA		no	PJ
4-Chlorotoluene	–		NA		no	PJ
Cyclohexane	–		1.00E-01	R4	no	PJ
Cymene	–	p-Isopropylbenzene	NA		no	PJ
Dibenzofuran	–	Furan	6.00E+02	R4s	no	PJ
1,2-Dibromo-3-chloropropane (dbcp)	–		3.52E-02	R5	no	PJ
1,2-Dibromoethane	–		1.23E+00	R5	no	PJ
Dibromomethane	–		6.50E+01	R5	no	PJ
1,2-Dichlorobenzene	–		2.96E+00	R5	YES	USEPA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	–	1,2-Dichlorobenzene	2.96E+00	R5s	no	PJ
1,3-Dichlorobenzene	–		3.77E+01	R5	YES	USEPA
1,4-Dichlorobenzene	–		5.46E-01	R5	YES	USEPA
1,4 Dichloro-2-butene	–		NA		no	PJ
trans-1,4-Dichlorobutene	–		NA		no	PJ
1,1-Dichloroethane	–		2.01E+01	R5	no	PJ
1,2-Dichloroethane	–		4.00E-01	R4	no	PJ
1,1-Dichloroethylene	–		8.28E+00	R5	no	PJ
1,2-Dichloroethene	–	1,2-Dichloroethene mix	NA		no	PJ
cis-1,2-Dichloroethene	–	1,2-Dichloroethene mix	NA		no	PJ

Table E.2-22
Ecological Screening Levels
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
trans-1,2-Dichloroethene	–		7.84E-01	R5	no	PJ
Dichloromethane	–		2.00E+00	R4	no	PJ
1,2-Dichloropropane	–		7.00E+02	R4	no	PJ
1,3-Dichloropropane	–	1,2-Dichloropropane	7.00E+02	R4s	no	PJ
2,2-Dichloropropane	–	1,2-Dichloropropane	7.00E+02	R4s	no	PJ
1,1-Dichloropropene	–		NA		no	PJ
cis-1,3-Dichloropropene	–		3.98E-01	R5	no	PJ
trans-1,3-Dichloropropene	–		3.98E-01	R5	no	PJ
Diethyl ether	–		NA		no	PJ
Ethanol	–		NA		no	PJ
Ethyl methacrylate	–		3.00E+01	R5	no	PJ
Ethylbenzene	–		5.00E-02	R4	no	PJ
Iodomethane	–		1.23E+00	R5	no	PJ
Isopropyl alcohol	–		NA		no	PJ
Isopropylbenzene	–		NA		no	PJ
Methyl acetate	–		NA		no	PJ
Methyl methacrylate	–		9.84E+02	R5	no	PJ
Methyl n-butyl ketone	–		1.26E+01	R5	no	PJ
Methylacrylonitrile	–		5.70E-02	R5	no	PJ
Methylbenzene	–		5.00E-02	R4	no	PJ
Methylcylohexane	–		NA		no	PJ
2-Methyl-1-propanol	–		2.08E+01	R5	no	PJ
4-Methyl-2-pentanone (MIBK)	–		4.43E+02	R5	no	PJ
Methyl tert-Butyl Ether (MTBE)	–		NA		no	PJ
Nitrobenzene	–		4.00E+01	R4	no	PJ
Propionitrile	–		4.98E-02	R5	no	PJ
n-Propylbenzene	–		NA		no	PJ
Styrene (monomer)	–		1.00E-01	R4	no	PJ
Tetrachloroethene	–		9.92E+00	R5	no	PJ
1,1,1,2-Tetrachloroethane	–		2.25E+02	R5	no	PJ
1,1,2,2-Tetrachloroethane	–		1.27E-01	R5	no	PJ
1,1,1-Trichloroethane	–		2.98E+01	R5	no	PJ
1,1,2-Trichloroethane	–		2.86E+01	R5	no	PJ
1,2,3-Trichlorobenzene	–	1,2,4-Trichlorobenzene	1.11E+01	R5s	no	PJ
1,2,4-Trichlorobenzene	–		1.11E+01	R5	YES	USEPA
1,2,4-Trimethylbenzene	–	Benzene	5.00E-02	R4s	no	PJ
1,3,5-Trimethylbenzene	–	Benzene	5.00E-02	R4s	no	PJ
1,2,3-Trichloropropane	–		3.36E+00	R5	no	PJ
Trichloroethylene	–		1.00E-03	R4	no	PJ
Vinyl acetate	–		1.27E+01	R5	no	PJ
Vinyl chloride	–		1.00E-02	R4	no	PJ
m,p-Xylene	–	Xylenes (total)	5.00E-02	R4s	no	PJ
o-Xylene	–	Xylenes (total)	5.00E-02	R4s	no	PJ
1,3-Xylene/1,4-Xylene	–		NA		no	PJ
Xylenes	–		5.00E-02	R4	no	PJ
Semi Volatile Organic Compounds						
2-Acetylaminofluorene	–		5.96E-01	R5	no	PJ
4-Aminobiphenyl	–		3.05E-03	R5	no	PJ
Aniline	–		5.68E-02	R5	no	PJ
Azobenzene	–		NA		no	PJ
Benzidine	–		NA		no	PJ
Benzoic acid	–		NA		no	PJ
Benzyl alcohol	–		6.58E+01	R5	no	PJ

Table E.2-22
Ecological Screening Levels
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
Benzyl butyl phthalate	–		2.39E-01	R5	no	PJ
Bis(2-chloroethoxy)methane	–		3.02E-01	R5	no	PJ
Bis(2-ethylhexyl)phthalate	–		1.00E-01	R4	no	PJ
4-Bromophenyl phenyl ether	–		NA		YES	USEPA
2-Butoxy ethanol	–		NA		no	PJ
Carbazole	–		NA		no	PJ
Chlordecone (Kepone)	–		3.27E-02	R5	no	PJ
p-Chloroaniline	–		1.10E+00	R5	no	PJ
Chlorobenzilate	–		5.05E+00	R5	no	PJ
4-Chloro-3-methylphenol	–		7.95E+00	R5	no	PJ
Chlorophenols	–		1.99E-01	R5	no	PJ
4-Chlorophenyl phenyl ether	–		NA		YES	USEPA
Coumaphos	–		NA		no	PJ
m,p-Cresol	–		NA		no	PJ
Dibenz[a,,j]acridine	–		NA		no	PJ
Dichlorvos (DDVP)	–		NA		no	PJ
3,3'-Dichlorobenzidine	–		6.46E-01	R5	no	PJ
2,4-Dichlorophenol	–		8.75E+01	R5	no	PJ
2,6-Dichlorophenol	–		1.17E+00	R5	no	PJ
Diethyl phthalate	–		1.00E+02	R4	no	PJ
o,o-Diethyl o-pyrazinyl phosphorothioate	–		7.99E-01	R5	no	PJ
4-Dimethylaminoazobenzene	–		4.00E-02	R5	no	PJ
3,3'-Dimethylbenzidine	–		1.04E-01	R5	no	PJ
2,4-Dimethylphenol	–		1.00E-02	R5	no	PJ
2,4-Dinitrophenol	–		2.00E+01	R4	no	PJ
2,4-Dinitrotoluene	–		1.28E+00	R5	no	PJ
1,2-Diphenylhydrazine	–		NA		no	PJ
a,a-Dimethylphenethylamine	–		3.00E-01	R5	no	PJ
Dimethyl phthalate	–		2.00E+02	R4	no	PJ
Di-n-butyl phthalate	–		2.00E+02	R4	no	PJ
m-Dinitrobenzene	–		6.55E-01	R5	no	PJ
Di-n-octyl phthalate	–		7.09E+02	R5	no	PJ
1,4-Dioxane	–		2.05E+00	R5	no	PJ
Diphenylamine	–		1.01E+00	R5	no	PJ
Diphenylhydrazine	–		NA		no	PJ
Ethyl methanesulfonate	–		NA		no	PJ
Famphur	–		4.97E-02	R5	no	PJ
Hexachloro-1,3-butadiene	–		3.98E-02	R5	YES	USEPA
Hexachlorobenzene	–		2.50E-03	R4	YES	USEPA
Hexachlorocyclopentadiene	–		1.00E+01	R4	YES	USEPA
Hexachloroethane	–		5.96E-01	R5	YES	USEPA
Hexachlorophene (HCP)	–		1.99E-01	R5	no	PJ
Hexachloropropene	–	Chloropropene	2.90E-03	R5s	no	PJ
Isodrin	–		3.20E-03	R5	no	PJ
Isosafrole	–		9.94E+00	R5	no	PJ
Methanamine, n-methyl-n-nitroso	–		3.21E-05	R5	no	PJ
Methapyrilene	–		2.78E+00	R5	no	PJ
2-Methyl-4,6-dinitrophenol	–		1.44E-01	R5	no	PJ
Methyl methanesulfonate	–		3.15E-01	R5	no	PJ
Methyl parathion	–	Parathion	3.40E-04	R5s	no	PJ
2-Methylphenol	–		4.04E+01	R5	no	PJ
3-Methylphenol	–		3.49E+00	R5	no	PJ
4-Methylphenol	–		1.63E+02	R5	no	PJ

Table E.2-22
Ecological Screening Levels
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
2-Methyl pyridine	–		9.90E+00	R5	no	PJ
1,4-Naphthoquinone	–		1.67E+00	R5	no	PJ
1-Naphthylamine	–		9.34E+00	R5	no	PJ
2-Naphthylamine	–		3.03E+00	R5	no	PJ
2-Nitroaniline	–		7.41E+01	R5	no	PJ
3-Nitroaniline	–		3.16E+00	R5	no	PJ
p-Nitroaniline	–		2.19E+01	R5	no	PJ
n-Nitrodimethylamine	–		NA		no	PJ
2-Nitrophenol	–		1.60E+00	R5	no	PJ
4-Nitrophenol	–		5.12E+00	R5	no	PJ
4-Nitroquinoline-n-oxide	–		1.22E-01	R5	no	PJ
n-Nitrosodiethylamine	–		6.93E-02	R5	no	PJ
n-Nitrosodi-n-butylamine	–		2.67E-01	R5	no	PJ
n-Nitrosodi-n-propylamine	–		5.44E-01	R5	no	PJ
n-Nitrosodiphenylamine	–		2.00E+01	R4	no	PJ
n-Nitrosodiphenylamine & diphenylamine	–	n-Nitrosodiphenylamine	2.00E+01	R4s	no	PJ
n-Nitrosomethyl-ethylamine	–		1.66E-03	R5	no	PJ
n-Nitrosomorpholine	–		7.06E-02	R5	no	PJ
n-Nitrosopiperidine	–		6.50E-03	R5	no	PJ
n-Nitrosopyrrolidine	–		1.26E-02	R5	no	PJ
5-Nitro-o-toluidine	–		8.73E+00	R5	no	PJ
Pentachlorobenzene	–		2.50E-03	R4	YES	USEPA
Pentachloroethane	–		1.07E+01	R5	no	PJ
Pentachlorophenol	–		2.10E+00	EcoSSL	YES	USEPA
Phenacetin	–		1.17E+01	R5	no	PJ
Phenol	–		1.20E+02	R5	no	PJ
p-Phenylenediamine	–		6.16E+00	R5	no	PJ
Propyzamide	–		1.36E-02	R5	no	PJ
Pyridine	–		1.00E-01	R4	no	PJ
Safrole	–		4.04E-01	R5	no	PJ
Sulprofos	–		NA		no	PJ
1,2,4,5-Tetrachlorobenzene	–		2.02E+00	R5	YES	USEPA
o-Toluidine	–		2.97E+00	R5	no	PJ
Tribomomethane	–		1.59E+01	R5	no	PJ
2,4,5-Trichlorophenol	–		4.00E+00	R4	no	PJ
2,4,6-Trichlorophenol	–		1.00E+01	R4	no	PJ
o,o,o-Triethyl phosphorothioate	–		8.18E-01	R5	no	PJ
3,5,5-Trimethyl-2-cyclohexene-1-one	–		1.39E+02	R5	no	PJ
1,3,5-Trinitrobenzene	–		3.76E-01	R5	no	PJ
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	–		2.00E+01	R4	YES	USEPA
Acenaphthylene	–		6.82E+02	R5	YES	USEPA
Anthracene	–		1.00E-01	R4	YES	USEPA
Benzo(a)anthracene	–		5.21E+00	R5	YES	USEPA
Benzo(a)pyrene	–		1.00E-01	R4	YES	USEPA
Benzo(b)fluoranthene	–	Fluoranthene	1.00E-01	R4s	YES	USEPA
Benzo(b&k)fluoranthene	–	Fluoranthene	1.00E-01	R4s	YES	USEPA
Benzo(g,h,i)perylene	–		1.19E+02	R5	YES	USEPA
Benzo(k)fluoranthene	–		1.48E+02	R5	YES	USEPA
1,2-Benzphenanthracene	–		4.73E+00	R5	YES	USEPA
1-Chloronaphthalene	–	2-Chloronaphthalene	1.22E-02	R5s	no	PJ
2-Chloronaphthalene	–		1.22E-02	R5	no	PJ
Dibenz(a,h)anthracene	–		1.84E+01	R5	YES	USEPA

Table E.2-22
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Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
7,12-Dimethylbenz(a)anthracene	–	Benzo(a)anthracene	5.21E+00	R5s	no	PJ
Fluoranthene	–		1.00E-01	R4	YES	USEPA
Fluorene	–		1.22E+02	R5	YES	USEPA
Indeno(1,2,3-cd)pyrene	–		1.09E+02	R5	YES	USEPA
3-Methylchloranthrene	–		7.79E-02	R5	no	PJ
1-Methylnaphthalene	–	2-Methylnaphthalene	3.24E+00	R5s	no	PJ
2-Methylnaphthalene	–		3.24E+00	R5	no	PJ
Naphthalene	–		1.00E-01	R4	no	PJ
Phenanthrene	–		1.00E-01	R4	YES	USEPA
Pyrene	–		1.00E-01	R4	YES	USEPA
Dioxin/Furan Compounds						
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.10		NA		YES	USEPA
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1.00		NA		YES	USEPA
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1.00		1.99E-07	R5	YES	USEPA
2,3,4,7,8-Pentachlorodibenzofuran	0.30		NA		YES	USEPA
2,3,7,8-Tetrachlorodibenzofuran	0.10		NA		YES	USEPA
Total HxCDD	–		NA		no	PJ
Total HxCDF	–		NA		no	PJ
Total PeCDF	–		NA		no	PJ
Dioxin Toxicity Equivalents	–	2,3,7,8-TCDD	1.99E-07	R5s	no	PJ
Herbicides						
2,4-D	–		2.72E-01	R5	no	PJ
2,4-DB	–		NA		no	PJ
Dicamba	–		NA		no	PJ
2,2-Dichloropropionic acid	–		NA		no	PJ
Dichlorprop	–		NA		no	PJ
MCPP	–		NA		no	PJ
2,4,5-T	–		5.96E-01	R5	no	PJ
2,4,5-TP (silvex)	–		1.09E-01	R5	no	PJ
Pesticides						
Aldrin	–		2.50E-03	R4	YES	USEPA
Aramite	–		1.66E+02	R5	no	PJ
Azinphos-methyl (Guthion)	–		NA		no	PJ
Basudin, neocidol	–		NA		YES	USEPA
alpha-BHC	–		9.94E-02	R5	YES	USEPA
beta-BHC	–		3.98E-03	R5	YES	USEPA
delta-BHC	–		9.94E+00	R5	YES	USEPA
gamma-BHC	–		5.00E-03	R5	YES	USEPA
Camphechlor	–		1.19E-01	R5	YES	USEPA
Chlordane	–		2.24E-01	R5	YES	USEPA
alpha-Chlordane	–		2.24E-01	R5	YES	USEPA
gamma-Chlordane	–	Chlordane	2.24E-01	R5s	YES	USEPA
Chlorpyrifos	–		NA		YES	USEPA
Cygon	–		NA		no	PJ
4,4-DDD	–		2.10E-02	EcoSSL	YES	USEPA
4,4-DDE	–		2.10E-02	EcoSSL	YES	USEPA
4,4-DDT	–		2.10E-02	EcoSSL	YES	USEPA
Dasanit	–		NA		no	PJ
Demeton	–		NA		no	PJ
Diallate	–		4.52E-01	R5	no	PJ
Dibrom	–		NA		no	PJ
Dieldrin	–		4.90E-03	EcoSSL	YES	USEPA
Dinoseb	–		2.18E-02	R5	no	PJ

Table E.2-22
Ecological Screening Levels
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
Disulfoton	–		1.99E-02	R5	YES	USEPA
Endosulfan I	–		1.19E-01	R5	YES	USEPA
Endosulfan II	–		1.19E-01	R5	YES	USEPA
Endosulfan sulfate	–		3.58E-03	R5	no	PJ
Endrin	–		1.00E-03	R4	YES	USEPA
Endrin aldehyde	–		1.05E-02	R5	no	PJ
Endrin ketone	–	Endrin	1.00E-03	R4s	no	PJ
EPN	–		NA		no	PJ
Ethoprophos	–		NA		no	PJ
Fenthion	–		NA		no	PJ
Folex	–		NA		no	PJ
Heptachlor	–		5.98E-03	R5	YES	USEPA
Heptachlor epoxide	–		1.52E-01	R5	YES	USEPA
Malathion	–		NA		no	PJ
MCPA	–		NA		no	PJ
Mevinphos	–		NA		no	PJ
Monocrotophos	–		NA		no	PJ
Parathion	–		3.40E-04	R5	no	PJ
Pentachloronitrobenzene	–		7.09E+00	R5	YES	USEPA
Phorate	–		4.96E-04	R5	no	PJ
Ronnel	–		NA		no	PJ
Sulfotep	–		5.96E-01	R5	no	PJ
Tetraethyl pyrophosphate (TEPP)	–		NA		no	PJ
Tetrachlorvinphos	–		NA		no	PJ
Tokuthion (Protothiofos)	–		NA		no	PJ
Trichloronate	–		NA		no	PJ
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	–		1.99E-02	R5	YES	USEPA
2,4,5-Trichlorophenoxyproprionic acid	–		5.96E-01	R5	no	PJ
Total Petroleum Hydrocarbons (TPH)						
>C10-C28	–	TPH (total)	1.00E+04	API	no	PJ
>C28-C35	–	TPH (total)	1.00E+04	API	no	PJ
>C6-C10	–	TPH (total)	1.00E+04	API	no	PJ
Diesel (c12-c24)	–	TPH (total)	1.00E+04	API	no	PJ
DRO	–	TPH (total)	1.00E+04	API	no	PJ
GRO	–	TPH (total)	1.00E+04	API	no	PJ
JP-4	–	TPH (total)	1.00E+04	API	no	PJ
JP-8	–	TPH (total)	1.00E+04	API	no	PJ
Motor oil (c24-c40)	–	TPH (total)	1.00E+04	API	no	PJ
Oil range	–	TPH (total)	1.00E+04	API	no	PJ
Petroleum hydrocarbons	–	TPH (total)	1.00E+04	API	no	PJ
TPH	–	TPH (total)	1.00E+04	API	no	PJ
TPRH	–	TPH (total)	1.00E+04	API	no	PJ
Polychlorinated Biphenyls						
Aroclor 1016	–	PCB (Total)	2.00E-02	R4	YES	USEPA
Aroclor 1221	–	PCB (Total)	2.00E-02	R4	YES	USEPA
Aroclor 1232	–	PCB (Total)	2.00E-02	R4	YES	USEPA
Aroclor 1242	–	PCB (Total)	2.00E-02	R4	YES	USEPA
Aroclor 1248	–	PCB (Total)	2.00E-02	R4	YES	USEPA
Aroclor 1254	–	PCB (Total)	2.00E-02	R4	YES	USEPA
Aroclor 1260	–	PCB (Total)	2.00E-02	R4	YES	USEPA
PCB (Total)	–		2.00E-02	R4	YES	USEPA
Explosives						
2-Amino-4,6-dinitrotoluene	–		NA		no	PJ

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Ecological Risk Assessment/ Remedial Investigation Report
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White Sands Missile Range, New Mexico

Constituent		TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*
4-Amino-2,6-dinitrotoluene		–	2,6-Dinitrotoluene	3.28E-02	R5s	no	PJ
4-Amino-dnt / 2-Amino-dnt		–		NA		no	PJ
Dinitrobenzene		–		NA		no	PJ
2,6-Dinitrotoluene		–		3.28E-02	R5	no	PJ
2,6-DNT / 2,4-DNT		–	2,6-Dinitrotoluene	3.28E-02	R5s	no	PJ
Nitroglycerin		–		NA		no	PJ
2-Nitrotoluene		–		NA		no	PJ
3-Nitrotoluene		–		NA		no	PJ
4-Nitrotoluene		–		NA		no	PJ
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine		–		NA		no	PJ
Pentaerythritol tetranitrate		–		NA		no	PJ
RDX		–		NA		no	PJ
Tetryl		–		NA		no	PJ
2,4,6-Trinitrotoluene		–		NA		no	PJ
Inorganics							
Aluminum		–		5.00E+01	R4	no	PJ
Ammonium Perchlorate		–		NA		no	PJ
Antimony		–		2.70E-01	EcoSSL	no	PJ
Arsenic		–		1.80E+01	EcoSSL	YES	USEPA
Barium		–		3.30E+02	EcoSSL	no	PJ
Beryllium		–		2.10E+01	EcoSSL	no	PJ
Boron		–		5.00E-01	R4	no	PJ
Cadmium		–		3.60E-01	EcoSSL	YES	USEPA
Chromium		–		2.60E+01	EcoSSL	no	PJ
Chromium (Hexavalent)		–		1.30E+02	EcoSSL	YES	USEPA
Cobalt		–		1.30E+01	EcoSSL	no	PJ
Copper		–		2.80E+01	EcoSSL	YES	USEPA
Cyanide (Total)		–	Cyanide	5.00E+00	R4s	no	PJ
Fluoride	[e]	–		3.00E+01	ORNL	no	PJ
Iron		–		2.00E+02	R4	no	PJ
Lead		–		1.10E+01	EcoSSL	YES	USEPA
Lithium		–		2.00E+00	R4	no	PJ
Manganese		–		2.20E+02	EcoSSL	no	PJ
Mercury		–		1.00E-01	R4	no	PJ
Molybdenum		–		2.00E+00	R4	no	PJ
Nickel		–		3.80E+01	EcoSSL	YES	USEPA
Selenium		–		5.20E-01	EcoSSL	YES	USEPA
Silver		–		4.20E+00	EcoSSL	YES	USEPA
Strontium		–		NA		no	PJ
Sulfate		–		NA		no	PJ
Thallium		–		1.00E+00	R4	no	PJ
Tin		–		5.30E+01	R4	no	PJ
Titanium Metal Powder		–		1.00E+03	R4	no	PJ
Uranium		–		5.00E+00	R4	no	PJ
Vanadium		–		7.80E+00	EcoSSL	no	PJ
Zinc		–		4.60E+01	EcoSSL	YES	USEPA
Radiometrics							
Gross alpha	[f]	–		2.00E+01	USDOE	no	PJ
Gross beta	[f]	–		2.00E+01	USDOE	no	PJ
Radium 228		–		NA		no	PJ

Notes:
– = Not available or applicable.

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Ecological Screening Levels
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	TEF [a]	Potential Surrogate [b]	Soil SLs [c] (mg/kg) Value	Soil SLs [c] (mg/kg) *Source*	Bioaccumulation [d] (Yes/no)	Bioaccumulation [d] *Source*

mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.
NA = Not available or applicable.
PJ = Professional judgement.
s = Surrogate was used.

[a] Toxicity Equivalency Factor (TEF); Federal Register Vol. 72, No. 90 (USEPA, 2007c).
[b] Surrogates were used were screening values were not available.
[c] Ecological soil screening levels were from the following sources in order of priority:
USEPA Ecological Soil Screening Levels (USEPA, 2005b, 2008c; EcoSSL).
Region 4 Ecological Screening Values (USEPA, 2001d; R4).
Region 5 Ecological Screening Levels (USEPA, 2003d; R5).
For EcoSSL SLs, the lowest value for all available endpoints was selected.
[d] The following source was consulted to identify bioaccumulation potential: (USEPA, 2000c).
[e] Oak Ridge National Laboratory (ORNL) screening benchmark for soil microorganisms & microbial processes (Efroymson et al., 1997).
[f] Ecological screening value of 20 picocuries per gram (pCi/g) is the most conservative Biota Concentration Guide (BCG), developed by the United States Department of Energy (USDOE) as part of a graded approach for evaluating radiation doses to terrestrial organisms (USDOE, 2002)

Table E.2-23

Uncertainties in the Screening-Level and Baseline-Level Ecological Risk Assessments

Ecological Risk Assessment/ Remedial Investigation Report

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Assumptions	Description And Discussion Related To Uncertainties in ERA	Uncertainty in SLERA	Uncertainty in BERA
Analytical Sampling and Data Analysis			
Limited number of samples	Frequently, there are only a limited number of samples used in ERAs, and very often they are collected in a biased manner (i.e., targeting "hot spots"). This type of sampling often lacks statistical power and does not likely represent the concentrations in the environment in which wildlife exposure occurs. Similarly, limited data used to estimate uptake into organisms may overestimate exposure via the food web.	Overestimate of exposure and risk	Overestimate of exposure and risk
Use of maximum concentrations	Maximum concentrations are used to represent the upper estimate exposures. This practice compensates for uncertainty contributed by limited numbers of samples, but overestimates exposure and risk.	Overestimate of exposure and risk	Overestimate of exposure and risk
Detection limits	Detection limits may exceed ESVs (e.g., PAHs) or thresholds for adverse impacts are well below the analytical methods used in ERA (e.g., compounds that are known or suspected to cause endocrine effects).	May underestimate risk or effect on risk estimate unknown	May underestimate risk or effect on risk unknown
Degradation of chemicals not considered	ERAs are almost exclusively based on concentrations of target compounds, and little if any attention is given to degradation compounds that could be more toxic than the original chemical. Conversely, chemical concentrations may decrease over time due to natural physical processes.	Effect on risk estimate unknown	Effect on risk estimate unknown
Selection of COPCs			
Background concentrations	Chemicals may be identified as COPCs despite the fact that the detected concentrations are less than background concentrations. This occurs because the ERA process does not permit use of background until Step 3a of the BERA (USEPA, 2001a; 2000b).	Overestimate of risk	Not Applicable
Toxicology and ESVs			
Toxicity and exposure data for a limited number of species	Uncertainties exist in many aspects of the toxicology relied upon for conducting ERAs (Newman, 1998; Lovett Doust et al., 1993). Toxicity and wildlife exposure data are only available for a limited number of species (most of them laboratory test species) under a strictly defined set of test conditions that deviate from natural conditions (Sample et al., 1996; Suter, 1996; Sample et al., 1997)	Effect on risk estimate unknown	Effect on risk estimate unknown
Laboratory testing	In current practice, more than 95 percent of the resources in toxicology are focused toward the study of single chemicals (Cassee et al., 1998), while wildlife exposures rarely occur on a chemical-specific basis. Simplistic extrapolations from laboratory species to wildlife species and testing conditions to field conditions are not likely accurate, and are rarely, if ever, validated against natural conditions (Power, 1996; Tannenbaum, 2003).	Effect on risk estimate unknown	Effect on risk estimate unknown
Adaptation and tolerance	There is little consistency and no quantitative methodology for the consideration of the diminished bioavailability (and, thereby, diminished toxicity) even though this process is well documented (e.g., Alexander and Alexander, 1999; Alexander, 2000). Similarly, tolerance and adaptation are not considered directly (Millward and Klerks, 2002; Grant, 2002). Furthermore, the white rat often used in toxicological testing is bred to minimize differences between lab animals, thereby diminishing the genetic variability that gives wildlife some capability for adaptation and tolerance (Tannenbaum, 2003).	Overestimate of risk	Overestimate of risk

Table E.2-23

Uncertainties in the Screening-Level and Baseline-Level Ecological Risk Assessments

Ecological Risk Assessment/ Remedial Investigation Report

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Assumptions	Description And Discussion Related To Uncertainties in ERA	Uncertainty in SLERA	Uncertainty in BERA
Predator-prey interactions	There are relatively few studies that actually evaluate the effects of toxicity on predator-prey interactions, or on competition for scarce resources (Atchison et al., 1996), the very conditions within which all wildlife exists (Kapustka and Landis, 1998).	Effect on risk estimate unknown	Effect on risk estimate unknown
HQs			
HQs based on maximum	The SLERA HQ is based on the maximum detected concentrations and the most conservative ESVs available (USEPA, 1997c; 2000b). HQs in the BERA are based on the exposure point concentration (minimum of the 95% upper confidence limit on the mean and the maximum concentration).	Overestimate of risk	Overestimate of risk
Elevated HQs for background concentrations	HQs may exceed a value of 1 for background concentrations of naturally occurring metals (Tannenbaum, 2003). This is due to many of the toxicology and ESV uncertainties already discussed.	Overestimate of risk	Overestimate of risk
Interpretation of HQs	An HQ less than or equal to a value of 1 indicates that adverse impacts to wildlife are considered unlikely (USEPA, 2001c). However, there is no clear guidance for interpreting the HQs that exceed a value of 1, except that this point of departure indicates that adverse effects of some kind may have occurred or may occur in the future.	Effect on risk estimate unknown	Effect on risk estimate unknown
HQs for individual used to evaluate risks to populations	HQs are based on the types of impacts that could occur to individuals (i.e., those individuals exposed to maximum concentrations) and they completely fail to address ecological exposure and risk at spatial scale of populations (Tannenbaum, 2003; Durda and Preziosi, 1999).	Overestimate of risk to wildlife populations	Overestimate of risk to wildlife populations
HQs with unrealistic	HQs are seen at magnitudes that suggest that every animal should die upon acute exposure (i.e., in the hundreds or thousands) (Tannenbaum et al., 2003). Often, physical conditions at a site demonstrate that this is not the case.	Overestimate of risk	Overestimate of risk
No evaluation of dermal or inhalation pathways	The dermal and inhalation exposure pathways are generally considered “insignificant” due to protective fur and feathers. Under certain conditions, these exposure pathways may occur, but adequate information is rarely available by which to evaluate them.	Not Applicable	Potentially an underestimate of risk

BERA	Baseline Ecological Risk Assessment.
COPC	Constituent of potential concern.
ERA	Ecological risk assessment.
ESV	Ecological screening value.
HQ	Hazard quotient.
PAH	Polynuclear aromatic hydrocarbon.
RTV	Reference toxicity value.
SLERA	Screening level ecological risk assessment.

Table E.2-24
Exposure Assumptions for Ecological Receptors
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Avian and Terrestrial Receptors											
Exposure Parameter	**Acronym**	**Units**	**Mourning Dove**		**Cactus Wren**		**Red-Tailed Hawk**		**Merriam's Kangaroo Rat**		**Desert Shrew**		**Desert Kit Fox**	
Body Weight (BW)	BW	kg	0.125	[e]	0.0389	[h]	1.134	[b]	0.0343	[c]	0.005	[i]	1.985	[e]
Proportion of Diet (P)	P	unitless												
Maximum Scenario:														
Soil		%	4.8%	[b]	9.3%	[b]	1.4%	[b]	2.4%	[b]	2%	[b]	2.8%	[b]
Invertebrates		%	–		100.0%	[f]	–		–		100.0%	[f]	–	
Plants and Fungi		%	100.0%	[e]	–		–		100.0%	[f]	–		–	
Small Mammals		%	–		–		100.0%	[f]	–		–		100.0%	[f]
Refined Scenario:														
Soil		%	4.8%	[b]	9.3%	[b]	1.4%	[b]	2.4%	[b]	2%	[b]	2.8%	[b]
Invertebrates		%	1.3%	[e]	83.0%	[f]	–		1.0%	[f]	100.0%	[f]	1.3%	[f]
Plants and Fungi		%	98.7%	[e]	17.0%	[f]	–		99.0%	[f]	–		0.7%	[f]
Small Mammals		%	–		–		100.0%	[f]	–		–		98.0%	[f]
Food Ingestion Rate - dry weight (IRdf)	IRdf	kg/day	0.0109	[c]	0.00713	[c]	0.0899	[c]	0.00282	[c]	0.00101	[c]	0.0702	[c]
Food Ingestion Rate - wet weight (IRwf)	IRwf	kg/day	0.0908	[c]	0.0427	[c]	0.2809	[c]	0.0235	[c]	0.00605	[c]	0.219	[c]
Water Ingestion Rate (IRw)	IRw	L/day	–		–		–		–		–		–	
Home Range [a]	HR	acres	649	[e]	4.8	[f]	2,470	[f]	0.13	[f]	0.1	[f]	3,039	[g]
Site Use Factor - Maximum Scenario (SUFm)	SUFm	unitless	1		1		1		1		1		1	
Site Use Factor - Refine Scenario (SUFr) [d]	SUFr	unitless	0.003		0.42		0.0008		1		1		0.0007	
Exposure Frequency (EF)	EF	unitless	1		1		1		1		1		1	

Notes:
% = Percent.
kg = Kilogram.
L = Liter.

[a] Home ranges were converted to acres if presented in units other than acres in respective sources.
[b] Beyer et al., 1994.
[c] Nagy, 2001.
[d] Refined SUFs were calculated using a site acreage of 2 acres.
[e] From CalEPA. 2003. Office of Environmental Health Hazard Assessment (OEHHA). California Wildlife Biology, Exposure Factors and Toxicity Database (Cal/Ecotox). California Environmental Protection Agency. Available at: http://www.oehha.org/cal_ecotox/species_reports.htm
[f] From CalEPA. 2005. California Department of Fish and Game (CDFG). Biogeographic Data Branch: Wildlife Notes. California Environmental Protection Agency. Available at: http://www.dfg.ca.gov/bdb/html/cawildlife.html
[g] From Zoellick, B.W. and N.S. Smith. 1992. Size and spatial organization of home ranges of kit foxes in Arizona. J. Mammal. 73(1): 83-88.
[h] From Anderson A.A. and A. Anderson 1973. The Cactus Wren. University of Arizona Press, Tucson.
[i] From M. Silva M. and J.A. Downing. 1995. CRC Handbook of Mammalian Body Masses.

Table E.2-25
SWMU Specific Refined Site Use Factors
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

SWMU	WSMR Area	Description	Approximate Acreage
25	HELSTF	former waste accumulation area, entire area is paved	(65 x 100) = 0.15 ac
26	HELSTF	vapor recovery unit, pavement surrounding	(8 x 12) = 0.002 ac
31,32	HELSTF	former waste tank area, dense shrub vegetation	(80 x 80) = 0.15 ac
33,34	HELSTF	fluorspar tanks, empty, concrete lined	(80 x 85) = 0.16 ac
38,39	HELSTF	former landfill, shrub habitat	(374 x 450) + (225 x 270) = 5.1
141	HELSTF	equipment storage, completely paved	(175 x 260) = 1 ac
142	HELSTF	cleaning facility sump, inside building	NA
143	HELSTF	chromate spill, red crushed rock ground cover, 10 ft fence	(70 x 45) = 0.07 ac
144	HELSTF	wastewater discharge, depression, salt cedar	(37 x 75) = 0.06 ac
145	HELSTF	former lagoon, completely paved, grass along edge	(60 x 105) = 0.14 ac
146	HELSTF	dry pond, patchy grass/shrub, salt cedar	(220 x 220) = 1 ac
147	HELSTF	decon area, concrete surrounding	(20 x 10) = 0.005 ac
148	HELSTF	close waste stabilization pond, entire area is paved	(70 x 87) = 0.14 ac
149	HELSTF	septic system, dense grass, fenced	(30 x 70) = 0.05 ac
150	HELSTF	dump site, shrub habitat	(56 x 235) = 0.3 ac
151,152	HELSTF	septic system, dense grass/scrub-shrub, salt cedar, fenced	(50 x 65) + (50 x 65) = 0.14 ac
154	HELSTF	diesel spill, red crushed rock ground cover, sparce grass	(90 x 75) = 0.2 ac
197 (TSA)	HELSTF	gasoline spill, gravel cover around tank	(30 x 30) = 0.02 ac

Table E.2-26
Bioconcentration and Bioaccumulation Factors for Soil
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

	Soil Bioconcentration and Bioaccumulation Factors (BCFsl and BAFsl)		
	Invertebrates	Vegetation	Mammalian
Constituent	**$BCFsl_i$ [a]**	**$BCFsl_v$ [b]**	**$BAFsl_m$ [c]**
Inorganics			
Arsenic	ln(Ci) = 0.706 * ln(Cs) - 1.42	4.56E-03	ln(Cm) = 0.8188 * ln(Cs) - 4.48471
Cadmium	ln(Ci) = 0.795 * ln(Cs) + 2.114	ln(Cp) = 0.546 * ln(Cs) - 0.475	ln(Cm) = 0.4723 * ln(Cs) - 1.2571
Lead	ln(Ci) = 0.807 * ln(Cs) - 0.218	ln(Cp) = 0.561 * ln(Cs) - 1.328	ln(Cm) = 0.4422 * ln(Cs) + 0.0761
Mercury	ln(Ci) = 0.328 * ln(Cs) + 4.449 [d]	1.08E-01 [e]	1.25E+01 [f]
Selenium	ln(Ci) = 0.733 * ln(Cs) - 0.075	ln(Cp) = 1.104 * ln(Cs) - 0.677	ln(Cm) = 0.3764 * ln(Cs) - 0.4158
Silver	3.42E-01	1.68E-03	1.28E-03

Notes:

BAF = Bioaccumulation Factor (unitless); BAF = (Tissue Concentration)/(Dietary Intake)

BCF = Bioconcentration Factor (unitless); BCF = (Tissue Concentration)/(Media Concentration)

[a] $BCFsl_i$ denotes BCFs for invertebrates. Unless otherwise noted, uptake equations for BCFs for earthworms were obtained from USEPA (2007).

[b] $BCFsl_v$ denotes BCF for vegetation. Unless otherwise noted, uptake equations for BCFs for vegetation were obtained from USEPA (2007) and are presented in dry weight.

[c] $BAFsl_m$ denotes BAF for mammals. Unless otherwise noted, uptake equations for BCFs for small mammals were obtained from USEPA (2007) and are presented in dry weight.

[d] $BCFsl_i$ for zinc used as a surrogate (USEPA, 2007).

[e] Uptake equation for BCFsl for vegetation was calculated using the Travis and Arms (1988) Log K_{ow} equation: Log BCFv = 1.588 - 0.578 Log K_{ow}. Values for uptake into leafy material, stem, and straw were used. Value was converted to wet weight by assuming vegetation was 88% moisture (each value was multiplied by 0.12 to dilute BCF representative of hydration).

[f] BAFsl for small mammals were estimated from biotransfer factors (BTFs) presented in Baes et al. (1984). BTFs were converted to BAFs by multiplying by an average food ingestion rate of 50 kg/day. Values are in wet weight.

Table E.2-27
Avian Toxicity Reference Values
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

	Test Species Chronic Toxicity Value (mg/kg BW-day)							Toxicity Reference Values (TRV) [a]					
								Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	LOAEL		NOAEL	Test Species	Effect	Body Weight of Test Species	Reference	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics													
Arsenic	22.4	[b]	2.24	Multiple Bird Species	Reproduction, growth, survival	NAP	USEPA, 2005	22.4	2.24	22.4	2.24	22.4	2.24
Cadmium	14.7	[b]	1.47	Multiple Bird Species	Reproduction, growth, survival	NAP	USEPA, 2005	14.7	1.47	14.7	1.47	14.7	1.47
Lead	16.3	[b]	1.63	Multiple Bird Species	Reproduction, growth, survival	NAP	USEPA, 2005	16.3	1.63	16.3	1.63	16.3	1.63
Mercury	1		0.5	Japanese Quail	Reproduction	NAP	Hill and Schaffner, 1976	0.9	0.45	0.9	0.45	0.9	0.45
Selenium	3	[b]	0.3	Multiple Bird Species	Reproduction, growth, survival	NAP	USEPA, 2005	2.9	0.29	2.9	0.29	2.9	0.29
Silver	2.02	[b]	0.202	Multiple Bird Species	Reproduction, growth, survival	NAP	USEPA, 2005	2.02	0.202	2.02	0.202	2.02	0.202

LOAEL Lowest Observed Adverse Effects Level.
NOAEL No Observed Adverse Effects Level.
mg/kg-BW-day Milligrams per kilogram of body weight per day.
TRV Toxicity Reference Value.
NAP Not applicable because body weight extrapolations are not appropriate for avain species.
[a] Toxicity Reference Values for $_{\text{wildlife species}}$ (TRV) = Chronic Toxiity Value for test species x $(BW_{\text{test species}} / BW_{\text{wildlife species}})^{1/4}$
[b] Acute LOAELs and NOAELs were extrapolated (converted) to chronic LOAELs and NOAELs by applying an acute-chronic ratio of 10 (Calabrese and Baldwin, 1993).

Table E.2-28
Mammalian Toxicity Reference Values
Ecological Risk Assessment/ Remedial Investigation Report
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

	Test Species Chronic Toxicity Value (mg/kg BW-day)							Toxicity Reference Values (TRV) [a]					
				Test		Body Weight of		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox	
Constituent	LOAEL		NOAEL	Species	Effect	Test Species	Reference	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics													
Arsenic	10.4	[b]	1.04	Multiple Mammals	Reproduction, growth	NAP	USEPA, 2005	10	1	10	1	10	1
Cadmium	7.7	[b]	0.77	Multiple Mammals	Reproduction, growth, survival	NAP	USEPA, 2005	7.7	0.77	7.7	0.77	7.7	0.77
Lead	47	[b]	4.7	Multiple Mammals	Reproduction, growth, survival	NAP	USEPA, 2005	47	4.7	47	4.7	47	4.7
Mercury	10.1	[b]	1.01	Mink	Reproduction	1	Bleavines and Aulerich, 1981	23	2.3	38	3.8	8.5	0.85
Selenium	1.43	[b]	0.143	Multiple Mammals	Reproduction, growth, survival	NAP	USEPA, 2005	1.4	0.14	1.4	0.14	1.4	0.14
Silver	6.02		0.602	[b] Multiple Mammals	Reproduction, growth, survival	NAP	USEPA, 2005	6	0.6	6	0.6	6	0.6

LOAEL Lowest Observed Adverse Effects Level.
NOAEL No Observed Adverse Effects Level.
mg/kg-BW-day Milligrams per kilogram of body weight per day.
TRV Toxicity Reference Value.
NAP Not applicable because multiple mammals were used for LOAEL and NOAEL toxicity value determinations.
[a] Toxicity Reference Values$_{\text{wildlife species}}$ (TRV) = Chronic Toxicity Value for test species x $(BW_{\text{test species}} / BW_{\text{wildlife species}})^{1/4}$
[b] Acute LOAELs and NOAELs were extrapolated (converted) to chronic LOAELs and NOAELs by applying an acute-chronic ratio of 10 (Calabrese and Baldwin, 1993).

Table E.2-29
Equations Used to Estimate Risk to Indicator Receptor Food Chain Models
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Intake Assessment

Terrestrial Food Chain Model

$$\text{Intake (mg/kg - day)} = \left(\frac{\sum_{1}^{f} \left(\left(\left(C_{soil} \times P_{soil} \right) \times \text{IR}_{\text{DF}} \right) + \left(\left(C_{food} \times P_{food} \right) \times \text{IR}_{\text{WF}} \right) \right) \times (\text{SUF}) \times (\text{EF})}{\text{BW}} \right)$$

Where:

C_{food}	=	Concentration of the constituent in the food (wet weight) (mg/kg)
C_{soil}	=	Concentration of the constituent in the soil (dry weight) (mg/kg)
P_{food}	=	Proportion of the diet comprised of the food item (unitless)
P_{soil}	=	Proportion of the diet comprised of the soil (unitless)
f	=	Number of different types of food (e.g., soil/sediment, invertebrates, vegetation (plants and fungi), mammals)
IR_{DF}	=	Ingestion rate of soil (dry weight) (kg/day)
IR_{WF}	=	Ingestion rate of food (wet weight) (kg/day)
SUF	=	Site use factor (unitless)
EF	=	Exposure frequency (unitless)
BW	=	Body weight of the organism (kg)

$$C_{food} = C_{soil} \times BAF_{food}$$

C_{food}	=	Concentration of the constituent in the food (wet weight) (mg/kg)
C_{soil}	=	Concentration of the constituent in the soil (dry weight) (mg/kg)
BAF_{food}	=	Bioaccumulation factor for food – primary consumer (wet weight)

Risk Calculations

Risk = Intake / TRV

$$\text{TRV}_{\text{Wildlife Species}} = \text{TRV}_{\text{Test Species}} \times \left[\frac{\text{BW}_{\text{TestSpecies}}}{\text{BW}_{\text{WildlifeSpecies}}} \right]^{\frac{1}{4}}$$

Where:

TRV Wildlife Species	=	NOAEL or LOAEL for the wildlife species
TRV Test Species	=	NOAEL or LOAEL for the laboratory test species (i.e., the toxicological benchmark)
BW Test Species	=	Body weight of the laboratory test species
BW Wildlife Species	=	Body weight of the wildlife species

Table E.3.Data-1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	0	-	7	0	–	-	–	0.012	-	0.1	–	0.0375	–	Y
Acrylonitrile	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Benzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Bromobenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Bromodichloromethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Bromomethane	0	-	7	0	–	-	–	0.012	-	0.05	–	0.0196	–	Y
2-Butanone	0	-	7	0	–	-	–	0.012	-	0.05	–	0.0196	–	Y
tert-Butyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
n-Butylbenzene	1	-	7	14.3	0.0596	-	0.0596	0.0062	-	0.01	HLSF-SB-010(11/1/2006)	0.0123	–	Y
sec-Butylbenzene	1	-	7	14.3	0.0424	-	0.0424	0.0062	-	0.01	HLSF-SB-010(11/1/2006)	0.00981	–	Y
tert-Butylbenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Carbon disulfide	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon tetrachloride	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
CFC-11	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
CFC-12	0	-	7	0	–	-	–	0.01	-	0.013	–	0.00536	–	Y
Chlorobenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Chlorobromomethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Chlorodibromomethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	N
Chloroethane	0	-	7	0	–	-	–	0.01	-	0.013	–	0.00536	–	Y
2-Chloroethyl vinyl ether	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Chloroform	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Chloromethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chlorotoluene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
4-Chlorotoluene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Cymene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	7	0	–	-	–	0.0062	-	0.05	–	0.0188	–	N
1,2-Dibromoethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Dibromomethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,2-Dichlorobenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,4-Dichlorobenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
trans-1,4-Dichlorobutene	0	-	5	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
1,1-Dichloroethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,2-Dichloroethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,1-Dichloroethylene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
cis-1,2-Dichloroethene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
trans-1,2-Dichloroethene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y

Table E.3.Data-1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Dichloromethane	0	-	7	0	–	-	–	0.0062	-	0.05	–	0.0188	–	Y
1,2-Dichloropropane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,3-Dichloropropane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
2,2-Dichloropropane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,1-Dichloropropene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
cis-1,3-Dichloropropene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
trans-1,3-Dichloropropene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Ethylbenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Iodomethane	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Isopropyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Isopropylbenzene	1	-	7	14.3	0.0133	-	0.0133	0.0062	-	0.01	HLSF-SB-010(11/1/2006)	0.00566	–	Y
m-Dichlorobenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Methyl n-butyl ketone	0	-	7	0	–	-	–	0.012	-	0.05	–	0.0196	–	Y
Methylbenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	7	0	–	-	–	0.012	-	0.05	–	0.0196	–	Y
Methyl tert-butyl ether (MTBE)	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
n-Propylbenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Styrene (monomer)	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Tetrachloroethene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,1,2-Tetrachloroethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,1,2,2-Tetrachloroethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,1,1-Trichloroethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	0.11	Y
1,1,2-Trichloroethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,2,3-Trichlorobenzene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,3-Trichloropropane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,2,4-Trichlorobenzene	0	-	7	0	–	-	–	0.0062	-	0.05	–	0.0188	–	Y
1,2,4-Trimethylbenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
1,3,5-Trimethylbenzene	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	Y
Trichloroethylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Vinyl chloride	0	-	7	0	–	-	–	0.01	-	0.013	–	0.00536	–	Y
m,p-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
o-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	2	0	–	-	–	0.0062	-	0.0064	–	0.00315	–	Y
Semi Volatile Organic Compounds														
2-Butoxy ethanol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1,4-Dioxane	0	-	5	0	–	-	–	0.5	-	0.5	–	0.25	–	N
Hexachloro-1,3-butadiene	0	-	7	0	–	-	–	0.0062	-	0.05	–	0.0188	–	N
Tribromomethane	0	-	7	0	–	-	–	0.0062	-	0.01	–	0.00447	–	N

Table E.3.Data-1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Polycyclic Aromatic Hydrocarbons														
Naphthalene	1	-	7	14.3	0.159	-	0.159	0.0062	-	0.05	HLSF-SB-010(11/1/2006)	0.0379	1.57	Y
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	1	-	5	20	67.3	-	67.3	50	-	50	HLSF-SB-010(11/1/2006)	33.5	–	N
Gasoline Range Organics (GRO)	1	-	5	20	2.04	-	2.04	1	-	1	HLSF-SB-010(11/1/2006)	0.808	–	N
Inorganics														
Chromium	5	-	5	100	2.17	-	17.3	–	-	–	HLSF-SB-010(11/1/2006)	10.3	–	N
Chromium (Hexavalent)	0	-	5	0	–	-	–	5	-	5	–	2.5	–	N
Zinc	5	-	5	100	3.88	-	50.7	–	-	–	HLSF-SB-010(11/1/2006)	30.1	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.3-HHRA-1
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	0	/	7	0	–	no
Acrylonitrile	0	/	5	0	–	no
Benzene	0	/	7	0	–	no
Bromobenzene	0	/	7	0	–	no
Bromodichloromethane	0	/	7	0	–	no
Bromomethane	0	/	7	0	–	no
2-Butanone	0	/	7	0	–	no
tert-Butyl alcohol	0	/	5	0	–	no
n-Butylbenzene	1	/	7	14	0.0596	YES
sec-Butylbenzene	1	/	7	14	0.0424	YES
tert-Butylbenzene	0	/	7	0	–	no
Carbon disulfide	0	/	5	0	–	no
Carbon tetrachloride	0	/	7	0	–	no
CFC-11	0	/	7	0	–	no
CFC-12	0	/	7	0	–	no
Chlorobenzene	0	/	7	0	–	no
Chlorobromomethane	0	/	7	0	–	no
Chloroethane	0	/	7	0	–	no
2-Chloroethyl vinyl ether	0	/	5	0	–	no
Chloroform	0	/	7	0	–	no
Chloromethane	0	/	5	0	–	no
2-Chlorotoluene	0	/	7	0	–	no
4-Chlorotoluene	0	/	7	0	–	no
Cymene	0	/	7	0	–	no
1,2-Dibromoethane	0	/	7	0	–	no
Dibromomethane	0	/	7	0	–	no
1,2-Dichlorobenzene	0	/	7	0	–	no
1,4-Dichlorobenzene	0	/	7	0	–	no
trans-1,4-Dichlorobutene	0	/	5	0	–	no
1,1-Dichloroethane	0	/	7	0	–	no
1,2-Dichloroethane	0	/	7	0	–	no
1,1-Dichloroethylene	0	/	7	0	–	no
cis-1,2-Dichloroethene	0	/	7	0	–	no
trans-1,2-Dichloroethene	0	/	7	0	–	no
Dichloromethane	0	/	7	0	–	no
1,2-Dichloropropane	0	/	7	0	–	no
1,3-Dichloropropane	0	/	7	0	–	no
2,2-Dichloropropane	0	/	7	0	–	no
1,1-Dichloropropene	0	/	7	0	–	no
cis-1,3-Dichloropropene	0	/	7	0	–	no
trans-1,3-Dichloropropene	0	/	7	0	–	no
Ethylbenzene	0	/	7	0	–	no
Iodomethane	0	/	5	0	–	no
Isopropylbenzene	1	/	7	14	0.0133	YES
m-Dichlorobenzene	0	/	7	0	–	no
Methyl n-butyl ketone	0	/	7	0	–	no
Methylbenzene	0	/	7	0	–	no
4-Methyl-2-pentanone(mibk)	0	/	7	0	–	no
MTBE	0	/	5	0	–	no
n-Propylbenzene	0	/	7	0	–	no
Styrene (monomer)	0	/	7	0	–	no
Tetrachloroethene	0	/	5	0	–	no
1,1,1,2-Tetrachloroethane	0	/	7	0	–	no
1,1,2,2-Tetrachloroethane	0	/	7	0	–	no
1,1,1-Trichloroethane	0	/	7	0	–	no
1,1,2-Trichloroethane	0	/	7	0	–	no
1,2,3-Trichlorobenzene	0	/	5	0	–	no
1,2,3-Trichloropropane	0	/	7	0	–	no
1,2,4-Trichlorobenzene	0	/	7	0	–	no
1,2,4-Trimethylbenzene	0	/	7	0	–	no
1,3,5-Trimethylbenzene	0	/	7	0	–	no
Trichloroethylene	0	/	5	0	–	no
Vinyl chloride	0	/	7	0	–	no
m,p-Xylene	0	/	5	0	–	no
o-Xylene	0	/	5	0	–	no
Xylenes	0	/	2	0	–	no

Table E.3-HHRA-1
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Polycyclic Aromatic Hydrocarbons						
Naphthalene	1	/	7	14	0.159	YES

Notes:
– = Not applicable.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] All detected volatile constituents were selected as COPCs for the vapor inhaltion pathway.

Table E.3-HHRA-2
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC ?	Exposure Point Concentrations [b]
	Soil (Total)	Soil (Total)
	Vapor Migration	(mg/kg)
Volatile Organic Compounds		
n-Butylbenzene	YES	5.96E-02 m
sec-Butylbenzene	YES	4.24E-02 m
Isopropylbenzene	YES	1.33E-02 m
Naphthalene	YES	1.59E-01 m

Notes:
– = Not detected/ not analyzed/ not applicable.
CASN = Chemical abstracts registry number.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
Exposure to lead is evaluated by predicting resultant blood lead levels using the arithmetic average (avg).
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.3-HHRA-3
Summary of Input Parameters
Estimating Vapors Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
104518	5.96E+01	n-Butylbenzene
135988	4.24E+01	sec-Butylbenzene
98828	1.33E+01	Cumene
91203	1.59E+02	Naphthalene

ENTER Average soil temperature, T_S (^oC)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G45)					
16.7	15	823	0	823			SCL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SCL	1.55	0.440	0.26	0.0015					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.3-HHRA-4
Intercalculations
Estimating Vapors Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
n-Butylbenzene	11,763	7.43E-03	3.13E-01	1.77E-04	9.77E-04	9.77E-04	9.95E+03	1.36E+00	9.77E-04	1.42E+15	5.81E-05	5.78E-01
sec-Butylbenzene	107,393	7.72E-05	3.24E-03	1.77E-04	1.12E-03	1.12E-03	8.51E+01	1.36E+00	1.12E-03	1.59E+13	5.81E-05	4.94E-03
Cumene	12,550	7.96E-03	3.35E-01	1.77E-04	1.11E-03	1.11E-03	4.74E+03	1.36E+00	1.11E-03	1.96E+13	5.81E-05	2.75E-01
Naphthalene	12,844	2.59E-04	1.09E-02	1.77E-04	1.05E-03	1.05E-03	5.39E+03	1.36E+00	1.05E-03	1.26E+14	5.81E-05	3.14E-01

Table E.3-HHRA-5

Estimates of Vapors in Indoor Air Migrating from Total Soil

Solid Waste Managment Unit 25 (SWMU 25)

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
n-Butylbenzene	5.96E-02	m	5.78E-01
sec-Butylbenzene	4.24E-02	m	4.94E-03
Isopropylbenzene	1.33E-02	m	2.75E-01
Naphthalene	1.59E-01	m	3.14E-01

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

—	Not applicable.
$\mu g/m^3$	Micrograms per cubic meter.
mg/kg	Milligrams per kilogram.
mg/L	Milligrams per liter.
max	Maximum.

[a] EPCs are presented in Table E.3-HHRA-2.

[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004), as directed by the User's Guide (USEPA, 2003), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.3-HHRA-6
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
n-Butylbenzene	5.78E-01	m	NA	NA	–	1.0E+00	1E-04	<1%
sec-Butylbenzene	4.94E-03	m	NA	NA	–	4.0E-01	3E-06	<1%
Isopropylbenzene	2.75E-01	m	NA	NA	–	4.0E-01	1E-04	<1%
Naphthalene	3.14E-01	m	NA	NA	–	3.0E-03	2E-02	99%
			Total ELCR	NA		Total HI	0.02	100%

[a] From Table E.3-HHRA-5.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	NC	Not evaluated as a carcinogen.
HQ	Hazard quotient for non-cancer effects.	RfC	Reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.3-HHRA-7
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child and Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
n-Butylbenzene	5.78E-01	m	NA	NA	–	1.0E+00	6E-04	<1%
sec-Butylbenzene	4.94E-03	m	NA	NA	–	4.0E-01	1E-05	<1%
Isopropylbenzene	2.75E-01	m	NA	NA	–	4.0E-01	7E-04	<1%
Naphthalene	3.14E-01	m	NA	NA	–	3.0E-03	1E-01	99%
			Total ELCR	NA		Total HI	0.1	100%

[a] From Table Table E.3-HHRA-5.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	NC	Not evaluated as a carcinogen.
HQ	Hazard quotient for non-cancer effects.	RfC	Reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.3-HHRA-8
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 25 (SWMU 25)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Excess Lifetime Cancer Risk and Total non-cancer Hazard Index

RECEPTOR Exposure Medium - Scenario	Calculation Table	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor			
Vapor Migration to Indoor Air		NA	0.02
TOTAL SITE RISKS:		NA	0.02
Hypothetical Future Child and Adult Resident Receptor			
Vapor Migration to Indoor Air		NA	0.1
TOTAL SITE RISKS:		NA	0.1

Table E.4-HHRA-1
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentration
0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Site Screening Level (SL) [b] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Residential	Industrial
Volatile Organic Compounds																		
Acetone	6	/	40	15.0	0.4	0.017	6.75E+04	n	8.51E+05	n	no	no	–	5.93E-06	–	4.70E-07	no	no
Acetophenone	0	/	40	0	–	17	7.82E+03	n	1.14E+05	n	–	–	–	–	–	–	no	no
Acrylonitrile	0	/	40	0	–	0.014	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0	/	40	0	–	0.014	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloro-1-methylethyl)ether	0	/	40	0	–	17	4.60E+01	c	2.20E+02	c	–	–	–	–	–	–	no	no
Bromobenzene	0	/	40	0	–	0.014	3.00E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bromodichloromethane	0	/	40	0	–	0.014	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0	/	40	0	–	0.014	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	3	/	40	7.50	0.046	0.0067	3.96E+04	n	3.69E+05	n	no	no	–	1.16E-06	–	1.25E-07	no	no
n-Butylbenzene	0	/	40	0	–	0.014	4.45E+03	n	3.38E+04	n	–	–	–	–	–	–	no	no
sec-Butylbenzene	0	/	40	0	–	0.014	2.55E+03	n	1.53E+04	n	–	–	–	–	–	–	no	no
tert-Butylbenzene	0	/	40	0	–	0.014	2.52E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Carbon disulfide	10	/	40	25.0	0.037	0.0067	1.94E+03	n	7.54E+03	n	no	no	–	1.91E-05	–	4.90E-06	no	no
Carbon tetrachloride	0	/	40	0	–	0.014	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
Chlorobenzene	0	/	40	0	–	0.014	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chloroethane	0	/	40	0	–	0.014	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
Chloroform	0	/	40	0	–	0.014	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0	/	40	0	–	0.014	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0	/	40	0	–	17	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
2-Chlorotoluene	0	/	40	0	–	0.014	1.56E+03	n	2.27E+04	n	–	–	–	–	–	–	no	no
4-Chlorotoluene	0	/	40	0	–	0.014	5.50E+03	n	7.20E+04	n	–	–	–	–	–	–	no	no
Dibenzofuran	0	/	40	0	–	17	7.80E+01	n	1.00E+03	n	–	–	–	–	–	–	no	no
1,2-Dibromoethane	0	/	40	0	–	0.014	5.74E-01	c	3.14E+00	c	–	–	–	–	–	–	no	no
Dibromomethane	0	/	40	0	–	0.014	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,1-Dichloroethane	3	/	40	7.50	0.006	0.014	6.29E+01	c	3.50E+02	c	no	no	9.54E-05	–	1.71E-05	–	no	no
1,2-Dichloroethane	0	/	40	0	–	0.014	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0	/	40	0	–	0.014	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0	/	40	0	–	0.014	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Methylene chloride	4	/	40	10.0	0.014	0.034	1.99E+02	c	1.09E+03	c	no	no	7.02E-05	–	1.29E-05	–	no	no
1,2-Dichloropropane	0	/	40	0	–	0.014	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
1,3-Dichloropropane	0	/	40	0	–	0.014	1.60E+03	n	2.00E+04	n	–	–	–	–	–	–	no	no
2,2-Dichloropropane	0	/	40	0	–	0.014	8.35E+00	n	3.90E+01	n	–	–	–	–	–	–	no	no
1,1-Dichloropropene	0	/	40	0	–	0.014	6.40E+01	c	3.18E+02	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0	/	40	0	–	0.014	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0	/	40	0	–	0.014	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethylbenzene	0	/	40	0	–	0.014	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0	/	40	0	–	0.014	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
Isopropylbenzene	0	/	40	0	–	0.014	3.21E+03	n	1.49E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0	/	40	0	–	17	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
n-Propylbenzene	0	/	40	0	–	0.014	3.40E+03	n	2.10E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0	/	40	0	–	0.014	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,1,2-Tetrachloroethane	0	/	40	0	–	0.014	2.92E+01	c	1.61E+02	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0	/	40	0	–	0.014	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0	/	40	0	–	0.014	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0	/	40	0	–	0.014	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichlorobenzene	0	/	40	0	–	0.014	4.90E+01	n	4.90E+02	n	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0	/	40	0	–	0.014	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trimethylbenzene	0	/	40	0	–	0.014	6.20E+01	n	2.60E+02	n	–	–	–	–	–	–	no	no
1,3,5-Trimethylbenzene	0	/	40	0	–	0.014	7.80E+02	n	1.00E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0	/	40	0	–	0.014	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
m,p-Xylene	0	/	40	0	–	0.027	8.29E+03	n	2.72E+04	n	–	–	–	–	–	–	no	no
o-Xylene	0	/	40	0	–	0.014	9.55E+03	n	3.15E+04	n	–	–	–	–	–	–	no	no

Table E.4-HHRA-1
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentration
0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)		Site Screening Level (SL) [b] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Residential	Industrial
Semi Volatile Organic Compounds																		
4-Aminobiphenyl	0	/ 40	0	–	17	^	2.30E-01	c	8.20E-01	c	–	–	–	–	–	–	no	no
Aniline	0	/ 40	0	–	17		8.50E+02	c	3.00E+03	c	–	–	–	–	–	–	no	no
Benzidine	0	/ 40	0	–	17	^	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0	/ 40	0	–	17		2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl alcohol	0	/ 40	0	–	17		6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
Bis(2-ethylhexyl)phthalate	0	/ 40	0	–	17		3.47E+02	c	1.37E+03	c	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0	/ 40	0	–	17		6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0	/ 40	0	–	17	^	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0	/ 40	0	–	17		1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
2,6-Dichlorophenol	0	/ 40	0	–	17		1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0	/ 40	0	–	17		1.22E+03	n	1.37E+04	n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0	/ 40	0	–	17		1.22E+02	n	1.37E+03	n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0	/ 40	0	–	17	^	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	1	/ 40	2.50	0.042	17		6.11E+03	n	6.84E+04	n	no	no	–	6.87E-06	–	6.14E-07	no	no
Diphenylamine	0	/ 40	0	–	17		1.50E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Diphenylhydrazine	0	/ 40	0	–	17	^	6.08E+00	c	2.39E+01	c	–	–	–	–	–	–	no	no
Ethyl methanesulfonate	0	/ 40	0	–	17		NA	n	NA	n	–	–	–	–	–	–	no	no
Hexachlorobenzene	0	/ 40	0	–	17	^	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0	/ 40	0	–	17		3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Hexachloroethane	0	/ 40	0	–	17		6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
4,6-Dinitro-2-methylphenol	0	/ 40	0	–	17	^	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–	no	no
Methyl methanesulfonate	0	/ 40	0	–	17		4.90E+01	c	1.70E+02	c	–	–	–	–	–	–	no	no
2-Methylphenol	0	/ 40	0	–	17		3.10E+03	n	3.10E+04	n	–	–	–	–	–	–	no	no
1-Naphthylamine	0	/ 40	0	–	17		NA	n	NA	n	–	–	–	–	–	–	no	no
2-Naphthylamine	0	/ 40	0	–	17	^	2.70E+00	c	9.60E+00	c	–	–	–	–	–	–	no	no
2-Nitroaniline	0	/ 40	0	–	17		6.10E+02	n	6.00E+03	n	–	–	–	–	–	–	no	no
3-Nitroaniline	0	/ 40	0	–	17		6.10E+02	n	6.81E+03	n	–	–	–	–	–	–	no	no
2-Nitrophenol	0	/ 40	0	–	17		NA	n	NA	n	–	–	–	–	–	–	no	no
4-Nitrophenol	0	/ 40	0	–	17		NA	n	NA	n	–	–	–	–	–	–	no	no
n-Nitrosopiperidine	0	/ 40	0	–	17	^	5.20E-01	c	1.80E+00	c	–	–	–	–	–	–	no	no
Pentachlorobenzene	0	/ 40	0	–	17		4.89E+01	n	5.47E+02	n	–	–	–	–	–	–	no	no
Pentachlorophenol	0	/ 40	0	–	17		2.98E+01	c	1.00E+02	c	–	–	–	–	–	–	no	no
Phenacetin	0	/ 40	0	–	17		2.20E+03	c	7.80E+03	c	–	–	–	–	–	–	no	no
Phenol	0	/ 40	0	–	17		1.83E+04	n	2.05E+05	n	–	–	–	–	–	–	no	no
Pyridine	0	/ 40	0	–	17		7.80E+01	n	1.00E+03	n	–	–	–	–	–	–	no	no
1,2,4,5-Tetrachlorobenzene	0	/ 40	0	–	17		1.83E+01	n	2.05E+02	n	–	–	–	–	–	–	no	no
2,4,5-Trichlorophenol	0	/ 40	0	–	17		6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0	/ 40	0	–	17		6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
Isophorone	2	/ 40	5.00	0.53	17		5.12E+03	c	2.02E+04	c	no	no	1.04E-04	–	2.63E-05	–	no	no
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	0	/ 40	0	–	17		3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0	/ 40	0	–	17		3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0	/ 40	0	–	17		1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0	/ 40	0	–	17	^	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0	/ 40	0	–	17	^	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0	/ 40	0	–	17	^	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0	/ 40	0	–	17		1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0	/ 40	0	–	17		6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1-Chloronaphthalene	0	/ 40	0	–	17		6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0	/ 40	0	–	17		6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
7,12-Dimethylbenz(a)anthracene	0	/ 40	0	–	17	^	1.80E-02	c	6.20E-02	c	–	–	–	–	–	–	no	no
Fluoranthene	0	/ 40	0	–	17		2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0	/ 40	0	–	17		2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0	/ 40	0	–	17	^	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
1-Methylnaphthalene	1	/ 40	2.50	0.067	17		2.20E+02	c	9.90E+02	c	no	no	3.05E-04	–	6.77E-05	–	no	no
2-Methylnaphthalene	0	/ 40	0	–	17		3.10E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Phenanthrene	1	/ 40	2.50	0.53	17		1.83E+03	n	2.05E+04	n	no	no	–	2.89E-04	–	2.58E-05	no	no
Pyrene	0	/ 40	0	–	17		1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no

Table E.4-HHRA-1
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentration
0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Site Screening Level (SL) [b] Residential Scenario (mg/kg)	Site Screening Level (SL) [b] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Residential	Constituent of Potential Concern (COPC)? [c] Industrial
Pesticides														
Pentachloronitrobenzene	0 / 40	0	–	17	1.90E+01 c	6.60E+01 c	–	–	–	–	–	–	no	no
Explosives														
2,6-Dinitrotoluene	0 / 40	0	–	17	6.12E+01 n	6.87E+02 n	–	–	–	–	–	–	no	no
Inorganics														
Antimony	1 / 10	10.0	2.62	2	3.13E+01 n	4.54E+02 n	no	no	–	8.37E-02	–	5.77E-03	no	no
Arsenic	4 / 50	8.00	1.77	3.76	3.90E+00 c	1.77E+01 c	no	no	4.54E-01	–	1.00E-01	–	no	no
Barium	50 / 50	100	110	–	1.56E+04 n	2.24E+05 n	no	no	–	7.05E-03	–	4.91E-04	no	no
Beryllium	0 / 10	0	–	0.5	1.56E+02 n	2.26E+03 n	–	–	–	–	–	–	no	no
Cadmium	6 / 50	12.0	2.08	1.36	7.79E+01 n	1.12E+03 n	no	no	–	2.67E-02	–	1.85E-03	no	no
Chromium	60 / 60	100	27.1	–	2.19E+02 n	2.92E+03 n	no	no	–	1.24E-01	–	9.28E-03	no	no
Chromium (Hexavalent)	0 / 60	0	–	19.3	2.19E+02 n	2.92E+03 n	–	–	–	–	–	–	no	no
Cobalt	2 / 10	20.0	1.23	0.5	2.30E+01 n	3.00E+02 n	no	no	–	5.35E-02	–	4.10E-03	no	no
Copper	10 / 10	100	330	–	3.13E+03 n	4.54E+04 n	no	no	–	1.05E-01	–	7.27E-03	no	no
Lead	7 / 50	14.0	62.5	6.82	4.00E+02 IEUBK	8.00E+02 IEUBK	no	no	–	–	–	–	no	no
Mercury	22 / 50	44.0	1.44	0.045	7.71E+00 n	4.99E+01 n	no	no	–	1.87E-01	–	2.88E-02	no	no
Nickel	7 / 10	70.0	4.74	0.5	1.56E+03 n	2.27E+04 n	no	no	–	3.03E-03	–	2.09E-04	no	no
Selenium	2 / 50	4.00	2.33	13.6	3.91E+02 n	5.68E+03 n	no	no	–	5.96E-03	–	4.10E-04	no	no
Silver	0 / 50	0	–	1.7	3.91E+02 n	5.68E+03 n	–	–	–	–	–	–	no	no
Thallium	0 / 10	0	–	10 ^	5.16E+00 n	7.49E+01 n	–	–	–	–	–	–	no	no
Tin	1 / 10	10.0	5.74	2	4.70E+04 n	6.10E+05 n	no	no	–	1.22E-04	–	9.41E-06	no	no
Vanadium	10 / 10	100	10.5	–	3.91E+02 n	5.68E+03 n	no	no	–	2.68E-02	–	1.85E-03	no	no
Zinc	10 / 10	100	222	–	2.35E+04 n	3.41E+05 n	no	no	–	9.46E-03	–	6.52E-04	no	no
Total Maximum / Screening Level Ratios									0.5	0.6	0.1	0.06		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)									5.E-06	0.6	1.E-06	0.06		

Target Organ Max/SL Ratios		
Kidney and Liver	0.06	0.004
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.05	0.004
Lungs	0.1	0.009
Gastrointestinal Tract and Forestomach	0.1	0.007
Whole Body	0.09	0.006
Blood	0.09	0.006
Nervous System	0.00002	0.000005
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.007	0.0005
Immune System	NA	NA
Development	0.000001	0.0000001
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	0.0003	0.00003

Notes:
– = Not applicable.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.
SL = Screening Level.

Table E.4-HHRA-1
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentration
0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Site Screening Level (SL) [b] Residential Scenario (mg/kg)	Site Screening Level (SL) [b] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Residential	Constituent of Potential Concern (COPC)? [c] Industrial

[a] Maximum detected concentration.
[b] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.4-HHRA-2
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentrations
0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Site Screening Level (SL) [b] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Construction
Volatile Organic Compounds											
Acetone	6	/ 40	15.0	0.4	0.017	2.63E+05	n	no	–	1.52E-06	no
Acetophenone	0	/ 40	0	–	17	3.10E+04	n	–	–	–	no
Acrylonitrile	0	/ 40	0	–	0.014	2.90E+02	n	–	–	–	no
Benzene	0	/ 40	0	–	0.014	4.71E+02	n	–	–	–	no
Bis(2-chloro-1-methylethyl)ether	0	/ 40	0	–	17	2.70E+03	c	–	–	–	no
Bromobenzene	0	/ 40	0	–	0.014	1.40E+03	n	–	–	–	no
Bromodichloromethane	0	/ 40	0	–	0.014	3.50E+03	c	–	–	–	no
Bromomethane	0	/ 40	0	–	0.014	6.71E+01	n	–	–	–	no
2-Butanone	3	/ 40	7.50	0.046	0.0067	1.48E+05	n	no	–	3.11E-07	no
n-Butylbenzene	0	/ 40	0	–	0.014	1.80E+04	n	–	–	–	no
sec-Butylbenzene	0	/ 40	0	–	0.014	1.05E+04	n	–	–	–	no
tert-Butylbenzene	0	/ 40	0	–	0.014	1.04E+04	n	–	–	–	no
Carbon disulfide	10	/ 40	25.0	0.037	0.0067	5.89E+03	n	no	–	6.28E-06	no
Carbon tetrachloride	0	/ 40	0	–	0.014	1.99E+02	n	–	–	–	no
Chlorobenzene	0	/ 40	0	–	0.014	1.58E+03	n	–	–	–	no
Chloroethane	0	/ 40	0	–	0.014	1.23E+05	n	–	–	–	no
Chloroform	0	/ 40	0	–	0.014	6.71E+02	c	–	–	–	no
Chloromethane	0	/ 40	0	–	0.014	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/ 40	0	–	17	1.55E+03	n	–	–	–	no
2-Chlorotoluene	0	/ 40	0	–	0.014	6.19E+03	n	–	–	–	no
4-Chlorotoluene	0	/ 40	0	–	0.014	2.17E+04	n	–	–	–	no
Dibenzofuran	0	/ 40	0	–	17	9.53E+02	n	–	–	–	no
1,2-Dibromoethane	0	/ 40	0	–	0.014	4.86E+01	c	–	–	–	no
Dibromomethane	0	/ 40	0	–	0.014	3.10E+03	n	–	–	–	no
1,1-Dichloroethane	3	/ 40	7.50	0.006	0.014	6.88E+03	c	no	8.72E-07	–	no
1,2-Dichloroethane	0	/ 40	0	–	0.014	7.51E+02	c	–	–	–	no
cis-1,2-Dichloroethene	0	/ 40	0	–	0.014	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/ 40	0	–	0.014	8.14E+02	n	–	–	–	no
Methylene chloride	4	/ 40	10.0	0.014	0.034	1.06E+04	n	no	–	1.33E-06	no
1,2-Dichloropropane	0	/ 40	0	–	0.014	1.17E+02	n	–	–	–	no
1,3-Dichloropropane	0	/ 40	0	–	0.014	6.19E+03	n	–	–	–	no
2,2-Dichloropropane	0	/ 40	0	–	0.014	3.51E+01	n	–	–	–	no
1,1-Dichloropropene	0	/ 40	0	–	0.014	2.17E+03	c	–	–	–	no
cis-1,3-Dichloropropene	0	/ 40	0	–	0.014	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/ 40	0	–	0.014	5.10E+02	n	–	–	–	no
Ethylbenzene	0	/ 40	0	–	0.014	6.63E+03	c	–	–	–	no
Iodomethane	0	/ 40	0	–	0.014	5.41E+01	n	–	–	–	no
Isopropylbenzene	0	/ 40	0	–	0.014	1.03E+04	n	–	–	–	no
Nitrobenzene	0	/ 40	0	–	17	5.20E+02	n	–	–	–	no
n-Propylbenzene	0	/ 40	0	–	0.014	1.64E+04	n	–	–	–	no
Tetrachloroethene	0	/ 40	0	–	0.014	3.38E+02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/ 40	0	–	0.014	2.78E+03	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/ 40	0	–	0.014	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/ 40	0	–	0.014	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/ 40	0	–	0.014	1.24E+03	n	–	–	–	no
1,2,3-Trichlorobenzene	0	/ 40	0	–	0.014	2.48E+02	n	–	–	–	no
1,2,3-Trichloropropane	0	/ 40	0	–	0.014	3.10E+01	c	–	–	–	no
1,2,4-Trimethylbenzene	0	/ 40	0	–	0.014	4.65E+02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/ 40	0	–	0.014	3.10E+03	n	–	–	–	no
Vinyl chloride	0	/ 40	0	–	0.014	2.48E+02	c	–	–	–	no
m,p-Xylene	0	/ 40	0	–	0.027	2.38E+04	n	–	–	–	no
o-Xylene	0	/ 40	0	–	0.014	2.75E+04	n	–	–	–	no

Table E.4-HHRA-2
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentrations
0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)		Site Screening Level (SL) [b] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Construction
Semi Volatile Organic Compounds												
4-Aminobiphenyl	0	/ 40	0	–	17	^	7.88E+00	c	–	–	–	no
Aniline	0	/ 40	0	–	17		1.41E+03	n	–	–	–	no
Benzidine	0	/ 40	0	–	17	^	7.20E-01	c	–	–	–	no
Benzoic acid	0	/ 40	0	–	17		9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/ 40	0	–	17		2.38E+04	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/ 40	0	–	17		4.76E+03	n	–	–	–	no
4-Chloro-3-methylphenol	0	/ 40	0	–	17		2.38E+04	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/ 40	0	–	17		3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/ 40	0	–	17		7.15E+02	n	–	–	–	no
2,6-Dichlorophenol	0	/ 40	0	–	17		7.15E+02	n	–	–	–	no
2,4-Dimethylphenol	0	/ 40	0	–	17		4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/ 40	0	–	17		4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/ 40	0	–	17		4.76E+02	n	–	–	–	no
Di-n-butyl phthalate	1	/ 40	2.50	0.042	17		2.38E+04	n	no	–	1.76E-06	no
Diphenylamine	0	/ 40	0	–	17		5.96E+03	n	–	–	–	no
Diphenylhydrazine	0	/ 40	0	–	17		2.07E+02	c	–	–	–	no
Ethyl methanesulfonate	0	/ 40	0	–	17		NA	n	–	–	–	no
Hexachlorobenzene	0	/ 40	0	–	17		1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/ 40	0	–	17		8.11E+02	n	–	–	–	no
Hexachloroethane	0	/ 40	0	–	17		2.38E+02	n	–	–	–	no
4,6-Dinitro-2-methylphenol	0	/ 40	0	–	17		2.38E+01	n	–	–	–	no
Methyl methanesulfonate	0	/ 40	0	–	17		1.67E+03	c	–	–	–	no
2-Methylphenol	0	/ 40	0	–	17		1.19E+04	n	–	–	–	no
1-Naphthylamine	0	/ 40	0	–	17		NA	n	–	–	–	no
2-Naphthylamine	0	/ 40	0	–	17		9.26E+01	c	–	–	–	no
2-Nitroaniline	0	/ 40	0	–	17		3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/ 40	0	–	17		3.88E+02	n	–	–	–	no
2-Nitrophenol	0	/ 40	0	–	17		NA	n	–	–	–	no
4-Nitrophenol	0	/ 40	0	–	17		NA	n	–	–	–	no
n-Nitrosopiperidine	0	/ 40	0	–	17		1.76E+01	c	–	–	–	no
Pentachlorobenzene	0	/ 40	0	–	17		1.91E+02	n	–	–	–	no
Pentachlorophenol	0	/ 40	0	–	17		1.03E+03	c	–	–	–	no
Phenacetin	0	/ 40	0	–	17		7.52E+04	c	–	–	–	no
Phenol	0	/ 40	0	–	17		6.88E+04	n	–	–	–	no
Pyridine	0	/ 40	0	–	17		3.10E+02	n	–	–	–	no
1,2,4,5-Tetrachlorobenzene	0	/ 40	0	–	17		7.15E+01	n	–	–	–	no
2,4,5-Trichlorophenol	0	/ 40	0	–	17		2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/ 40	0	–	17		2.38E+02	n	–	–	–	no
Isophorone	2	/ 40	5.00	0.53	17		4.75E+04	n	no	–	1.12E-05	no
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/ 40	0	–	17		1.86E+04	n	–	–	–	no
Acenaphthylene	0	/ 40	0	–	17		1.34E+04	n	–	–	–	no
Anthracene	0	/ 40	0	–	17		6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/ 40	0	–	17		2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/ 40	0	–	17		2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/ 40	0	–	17		2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/ 40	0	–	17		6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/ 40	0	–	17		2.06E+03	c	–	–	–	no
1-Chloronaphthalene	0	/ 40	0	–	17		2.48E+04	n	–	–	–	no
2-Chloronaphthalene	0	/ 40	0	–	17		2.48E+04	n	–	–	–	no
7,12-Dimethylbenz(a)anthracene	0	/ 40	0	–	17	^	6.20E-01	c	–	–	–	no
Fluoranthene	0	/ 40	0	–	17		8.91E+03	n	–	–	–	no

Table E.4-HHRA-2
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentrations
0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Site Screening Level (SL) [b] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Construction
Fluorene	0	/ 40	0	–	17	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/ 40	0	–	17	2.13E+02	c	–	–	–	no
1-Methylnaphthalene	1	/ 40	2.50	0.067	17	5.38E+03	c	no	1.25E-05	–	no
2-Methylnaphthalene	0	/ 40	0	–	17	8.91E+02	n	–	–	–	no
Phenanthrene	1	/ 40	2.50	0.53	17	7.15E+03	n	no	–	7.42E-05	no
Pyrene	0	/ 40	0	–	17	6.68E+03	n	–	–	–	no
Pesticides											
Pentachloronitrobenzene	0	/ 40	0	–	17	6.41E+02	c	–	–	–	no
Explosives											
2,6-Dinitrotoluene	0	/ 40	0	–	17	2.39E+02	n	–	–	–	no
Inorganics											
Antimony	1	/ 10	10.0	2.62	2	1.24E+02	n	no	–	2.11E-02	no
Arsenic	4	/ 50	8.00	1.77	3.76	6.54E+01	n	no	–	2.71E-02	no
Barium	50	/ 50	100	110	–	4.35E+03	n	no	–	2.53E-02	no
Beryllium	0	/ 10	0	–	0.5	1.44E+02	n	–	–	–	no
Cadmium	6	/ 50	12.0	2.08	1.36	3.09E+02	n	no	–	6.74E-03	no
Chromium	60	/ 60	100	27.1	–	4.49E+02	n	no	–	6.03E-02	no
Chromium (Hexavalent)	0	/ 60	0	–	19.3	4.49E+02	n	–	–	–	no
Cobalt	2	/ 10	20.0	1.23	0.5	3.48E+01	n	no	–	3.54E-02	no
Copper	10	/ 10	100	330	–	1.24E+04	n	no	–	2.66E-02	no
Lead	7	/ 50	14.0	62.5	6.82	8.00E+02	IEUBK	no	–	–	no
Mercury	22	/ 50	44.0	1.44	0.045	6.36E+01	n	no	–	2.26E-02	no
Nickel	7	/ 10	70.0	4.74	0.5	6.19E+03	n	no	–	7.65E-04	no
Selenium	2	/ 50	4.00	2.33	13.6	1.55E+03	n	no	–	1.50E-03	no
Silver	0	/ 50	0	–	1.7	1.55E+03	n	–	–	–	no
Thallium	0	/ 10	0	–	10	2.04E+01	n	–	–	–	no
Tin	1	/ 10	10.0	5.74	2	1.86E+05	n	no	–	3.09E-05	no
Vanadium	10	/ 10	100	10.5	–	1.55E+03	n	no	–	6.78E-03	no
Zinc	10	/ 10	100	222	–	9.29E+04	n	no	–	2.39E-03	no
Total Maximum / Screening Level Ratios									0.00001	0.2	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)									1E-10	0.2	

Target Organ Max/SL Ratios	
Kidney and Liver	0.04
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.06
Lungs	0.06
Gastrointestinal Tract and Forestomach	0.03
Whole Body	0.02
Blood	0.02
Nervous System	0.000006
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	0.03
Immune System	NA
Development	0.0000003
Reproduction	NA
Bone	NA
Not Available/ Not Reported	0.00009

Table E.4-HHRA-2
Selection of Constituents of Potential Concern in Soil and Sludge - Based on Maximum Detected Concentrations
0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Site Screening Level (SL) [b] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c] Construction

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.
SL =	Screening Level.
[a]	Maximum detected concentration.
[b]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[c]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded $1x10^{-5}$ for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.4-HHRA-3
Selection of Constituents of Potential Concern in Soil and Sludge for the Vapor Intrusion Pathway
Total Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) / number of			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	6	/	40	15.0	0.4	yes
Acetophenone	0	/	40	0	–	no
Acrylonitrile	0	/	40	0	–	no
Benzene	0	/	40	0	–	no
Bis(2-chloro-1-methylethyl)ether	0	/	40	0	–	no
Bromobenzene	0	/	40	0	–	no
Bromodichloromethane	0	/	40	0	–	no
Bromomethane	0	/	40	0	–	no
2-Butanone	3	/	40	7.50	0.046	yes
n-Butylbenzene	0	/	40	0	–	no
sec-Butylbenzene	0	/	40	0	–	no
tert-Butylbenzene	0	/	40	0	–	no
Carbon disulfide	10	/	40	25.0	0.037	yes
Carbon tetrachloride	0	/	40	0	–	no
Chlorobenzene	0	/	40	0	–	no
Chloroethane	0	/	40	0	–	no
Chloroform	0	/	40	0	–	no
Chloromethane	0	/	40	0	–	no
2-Chlorophenol	0	/	40	0	–	no
2-Chlorotoluene	0	/	40	0	–	no
4-Chlorotoluene	0	/	40	0	–	no
Dibenzofuran	0	/	40	0	–	no
1,2-Dibromoethane	0	/	40	0	–	no
Dibromomethane	0	/	40	0	–	no
1,1-Dichloroethane	3	/	40	7.50	0.006	yes
1,2-Dichloroethane	0	/	40	0	–	no
cis-1,2-Dichloroethene	0	/	40	0	–	no
trans-1,2-Dichloroethene	0	/	40	0	–	no
Methylene chloride	4	/	40	10.0	0.014	yes
1,2-Dichloropropane	0	/	40	0	–	no
1,3-Dichloropropane	0	/	40	0	–	no
2,2-Dichloropropane	0	/	40	0	–	no
1,1-Dichloropropene	0	/	40	0	–	no
cis-1,3-Dichloropropene	0	/	40	0	–	no
trans-1,3-Dichloropropene	0	/	40	0	–	no
Ethylbenzene	0	/	40	0	–	no
Iodomethane	0	/	40	0	–	no
Isopropylbenzene	0	/	40	0	–	no
Nitrobenzene	0	/	40	0	–	no
n-Propylbenzene	0	/	40	0	–	no
Tetrachloroethene	0	/	40	0	–	no
1,1,1,2-Tetrachloroethane	0	/	40	0	–	no
1,1,2,2-Tetrachloroethane	0	/	40	0	–	no
1,1,1-Trichloroethane	0	/	40	0	–	no
1,1,2-Trichloroethane	0	/	40	0	–	no
1,2,3-Trichlorobenzene	0	/	40	0	–	no
1,2,3-Trichloropropane	0	/	40	0	–	no
1,2,4-Trimethylbenzene	0	/	40	0	–	no
1,3,5-Trimethylbenzene	0	/	40	0	–	no
Vinyl chloride	0	/	40	0	–	no
m,p-Xylene	0	/	40	0	–	no
o-Xylene	0	/	40	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	40	0	–	no
Acenaphthylene	0	/	40	0	–	no
Anthracene	0	/	40	0	–	no
1-Chloronaphthalene	0	/	40	0	–	no
2-Chloronaphthalene	0	/	40	0	–	no
Fluorene	0	/	40	0	–	no
1-Methylnaphthalene	1	/	40	2.50	0.067	yes
2-Methylnaphthalene	0	/	40	0	–	no
Phenanthrene	1	/	40	2.50	0.53	yes

Table E.4-HHRA-3
Selection of Constituents of Potential Concern in Soil and Sludge for the Vapor Intrusion Pathway
Total Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

– =	Not applicable.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.

[a]	All detected volatile constituents were selected as COPCs for the vapor inhalation pathway.
[b]	Due to low frequency of detection, this constituent was not retained for further evaluation.

Table E.4-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	7	0	–	0.01	2.20E+02	n	–	–	–	no
Acetophenone	0	/	7	0	–	0.005	8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	7	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	0	/	7	0	–	0.001	1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	7	0	–	0.005	1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	7	0	–	0.005	NA	c	–	–	–	no
Bromobenzene	0	/	7	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0	/	7	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0	/	7	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0	/	7	0	–	0.005	4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	6	0	–	0.005	NA	n	–	–	–	no
n-Butylbenzene	0	/	7	0	–	0.001	2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	7	0	–	0.001	2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	7	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	7	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	7	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	0	/	7	0	–	0.001	1.80E-01	n	–	–	–	no
CFC-12	0	/	7	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	7	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	7	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0	/	7	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	7	0	–	0.005	NA	n	–	–	–	no
Chloroform	1	/	7	14.3	0.00137	0.001	8.00E-02	c	no	1.71E-02	–	no
Chloromethane	0	/	7	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorophenol	0	/	7	0	–	0.005	1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	7	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0	/	7	0	–	0.001	NA	n	–	–	–	no
Cymene	0	/	7	0	–	0.001	NA	n	–	–	–	no
Dibenzofuran	0	/	7	0	–	0.005	NA	n	–	–	–	no
1,2-Dibromoethane	0	/	7	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0	/	7	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	7	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	7	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	7	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	1	/	7	14.3	0.00362	0.001	2.20E+00	c	no	1.65E-03	–	no
1,2-Dichloroethane	0	/	7	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	1	/	7	14.3	0.00543	0.001	1.90E-01	n	no	–	2.86E-02	no
cis-1,2-Dichloroethene	0	/	7	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	7	0	–	0.001	1.80E-01	n	–	–	–	no
1,2-Dichloropropane	0	/	7	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	7	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	7	0	–	0.001	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	7	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	7	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	7	0	–	0.001	NA	c	–	–	–	no
Ethylbenzene	0	/	7	0	–	0.001	7.00E-01	c	–	–	–	no

Table E.4-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Iodomethane	0	/	7	0	–	0.005		NA	n	–	–	–	no
Isopropylbenzene	0	/	7	0	–	0.001		8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	7	0	–	0.001		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	7	0	–	0.005		NA	n	–	–	–	no
Methylbenzene	0	/	7	0	–	0.001		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	7	0	–	0.005		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	7	0	–	0.001		1.20E+02	c	–	–	–	no
Nitrobenzene	0	/	7	0	–	0.005		2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/	7	0	–	0.001		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	7	0	–	0.001		8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	7	0	–	0.001		1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	7	0	–	0.001		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	7	0	–	0.001		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	7	0	–	0.001		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	7	0	–	0.001		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	7	0	–	0.005		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	7	0	–	0.001		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	7	0	–	0.005		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	7	0	–	0.001		2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	7	0	–	0.001		2.50E-02	n	–	–	–	no
Trichloroethylene	0	/	7	0	–	0.001		5.00E-03	c	–	–	–	no
Vinyl chloride	0	/	7	0	–	0.001		2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	7	0	–	0.001		2.30E+01	n	–	–	–	no
o-Xylene	0	/	7	0	–	0.001		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds													
n-Nitrosodi-n-butylamine	0	/	7	0	–	0.005	^	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	7	0	–	0.005		NA	n	–	–	–	no
Acenaphthylene	0	/	7	0	–	0.005		NA	n	–	–	–	no
Anthracene	0	/	7	0	–	0.005		NA	n	–	–	–	no
1-Chloronaphthalene	0	/	7	0	–	0.005		NA	n	–	–	–	no
2-Chloronaphthalene	0	/	7	0	–	0.005		NA	n	–	–	–	no
Fluorene	0	/	7	0	–	0.005		NA	n	–	–	–	no
1-Methylnaphthalene	0	/	7	0	–	0.005		NA	c	–	–	–	no
2-Methylnaphthalene	0	/	7	0	–	0.005		3.30E+00	n	–	–	–	no
Naphthalene	0	/	7	0	–	0.005		1.50E-01	c	–	–	–	no
Phenanthrene	0	/	7	0	–	0.005		NA	n	–	–	–	no

	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios	0.02	0.03
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	2.E-07	0.03

Target Organ Max/SL Ratios	
Kidney and Liver	0.03
Brain	NA
Nasal	NA
Eyes	NA
Skin	NA

Table E.4-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
					Lungs			NA	
					Gastrointestinal Tract and Forestomach			NA	
					Whole Body			NA	
					Blood			NA	
					Nervous System			NA	
					Dental			NA	
					Red Blood Cells			NA	
					Glands			NA	
					Fetus			NA	
					Immune System			NA	
					Development			NA	
					Reproduction			NA	
					Bone			NA	
					Not Available/ Not Reported			NA	

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.
SL =	Screening Level.
[a]	Maximum (max) detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 .

Table E.4-HHRA-5
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	COPC? [a]					Exposure Point Concentrations [b]			
	Soil and Sludge (0-2 ft bgs)		Soil and Sludge (0-10 ft bgs)	Soil and Sludge	Saturated Vadose Zone	Soil and Sludge (0-2 ft bgs)	Soil and Sludge (0-10 ft bgs)	Soil and Sludge (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	4.05E-02	–
Acetophenone	no	no	no	no	no	–	–	–	–
Acrylonitrile	no	no	no	no	no	–	–	–	–
Benzene	no	no	no	no	no	–	–	–	–
Bis(2-chloro-1-methylethyl)ether	no	no	no	no	no	–	–	–	–
Bromobenzene	no	no	no	no	no	–	–	–	–
Bromodichloromethane	no	no	no	no	no	–	–	–	–
Bromomethane	no	no	no	no	no	–	–	–	–
2-Butanone	no	no	no	yes	no	–	–	4.60E-02 m	–
n-Butylbenzene	no	no	no	no	no	–	–	–	–
sec-Butylbenzene	no	no	no	no	no	–	–	–	–
tert-Butylbenzene	no	no	no	no	no	–	–	–	–
Carbon disulfide	no	no	no	yes	no	–	–	5.18E-03	–
Carbon tetrachloride	no	no	no	no	no	–	–	–	–
Chlorobenzene	no	no	no	no	no	–	–	–	–
Chloroethane	no	no	no	no	no	–	–	–	–
Chloroform	no	no	no	no	no	–	–	–	–
Chloromethane	no	no	no	no	no	–	–	–	–
2-Chlorophenol	no	no	no	no	no	–	–	–	–
2-Chlorotoluene	no	no	no	no	no	–	–	–	–
4-Chlorotoluene	no	no	no	no	no	–	–	–	–
Dibenzofuran	no	no	no	no	no	–	–	–	–
1,2-Dibromoethane	no	no	no	no	no	–	–	–	–
Dibromomethane	no	no	no	no	no	–	–	–	–
1,1-Dichloroethane	no	no	no	yes	no	–	–	6.00E-03 m	–
1,2-Dichloroethane	no	no	no	no	no	–	–	–	–
cis-1,2-Dichloroethene	no	no	no	no	no	–	–	–	–
trans-1,2-Dichloroethene	no	no	no	no	no	–	–	–	–
Methylene chloride	no	no	no	yes	no	–	–	1.40E-02 m	–
1,2-Dichloropropane	no	no	no	no	no	–	–	–	–
1,3-Dichloropropane	no	no	no	no	no	–	–	–	–
2,2-Dichloropropane	no	no	no	no	no	–	–	–	–
1,1-Dichloropropene	no	no	no	no	no	–	–	–	–
cis-1,3-Dichloropropene	no	no	no	no	no	–	–	–	–
trans-1,3-Dichloropropene	no	no	no	no	no	–	–	–	–
Ethylbenzene	no	no	no	no	no	–	–	–	–
Iodomethane	no	no	no	no	no	–	–	–	–
Isopropylbenzene	no	no	no	no	no	–	–	–	–
Nitrobenzene	no	no	no	no	no	–	–	–	–

Table E.4-HHRA-5
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	COPC? [a]					Exposure Point Concentrations [b]			
	Soil and Sludge (0-2 ft bgs)		Soil and Sludge (0-10 ft bgs)	Soil and Sludge	Saturated Vadose Zone	Soil and Sludge (0-2 ft bgs)	Soil and Sludge (0-10 ft bgs)	Soil and Sludge (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
n-Propylbenzene	no	no	no	no	no	–	–	–	–
Tetrachloroethene	no	no	no	no	no	–	–	–	–
1,1,1,2-Tetrachloroethane	no	no	no	no	no	–	–	–	–
1,1,2,2-Tetrachloroethane	no	no	no	no	no	–	–	–	–
1,1,1-Trichloroethane	no	no	no	no	no	–	–	–	–
1,1,2-Trichloroethane	no	no	no	no	no	–	–	–	–
1,2,3-Trichlorobenzene	no	no	no	no	no	–	–	–	–
1,2,3-Trichloropropane	no	no	no	no	no	–	–	–	–
1,2,4-Trimethylbenzene	no	no	no	no	no	–	–	–	–
1,3,5-Trimethylbenzene	no	no	no	no	no	–	–	–	–
Vinyl chloride	no	no	no	no	no	–	–	–	–
m,p-Xylene	no	no	no	no	no	–	–	–	–
o-Xylene	no	no	no	no	no	–	–	–	–
Semi Volatile Organic Compounds									
4-Aminobiphenyl	no	no	no	no	no	–	–	–	–
Aniline	no	no	no	no	no	–	–	–	–
Benzidine	no	no	no	no	no	–	–	–	–
Benzoic acid	no	no	no	no	no	–	–	–	–
Benzyl alcohol	no	no	no	no	no	–	–	–	–
Bis(2-ethylhexyl)phthalate	no	no	no	no	no	–	–	–	–
4-Chloro-3-methylphenol	no	no	no	no	no	–	–	–	–
3,3'-Dichlorobenzidine	no	no	no	no	no	–	–	–	–
2,4-Dichlorophenol	no	no	no	no	no	–	–	–	–
2,6-Dichlorophenol	no	no	no	no	no	–	–	–	–
2,4-Dimethylphenol	no	no	no	no	no	–	–	–	–
2,4-Dinitrophenol	no	no	no	no	no	–	–	–	–
2,4-Dinitrotoluene	no	no	no	no	no	–	–	–	–
Di-n-butyl phthalate	no	no	no	no	no	–	–	–	–
Diphenylamine	no	no	no	no	no	–	–	–	–
Diphenylhydrazine	no	no	no	no	no	–	–	–	–
Ethyl methanesulfonate	no	no	no	no	no	–	–	–	–
Hexachlorobenzene	no	no	no	no	no	–	–	–	–
Hexachlorocyclopentadiene	no	no	no	no	no	–	–	–	–
Hexachloroethane	no	no	no	no	no	–	–	–	–
4,6-Dinitro-2-methylphenol	no	no	no	no	no	–	–	–	–
Methyl methanesulfonate	no	no	no	no	no	–	–	–	–
2-Methylphenol	no	no	no	no	no	–	–	–	–
1-Naphthylamine	no	no	no	no	no	–	–	–	–
2-Naphthylamine	no	no	no	no	no	–	–	–	–
2-Nitroaniline	no	no	no	no	no	–	–	–	–
3-Nitroaniline	no	no	no	no	no	–	–	–	–

Table E.4-HHRA-5
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	COPC? [a]					Exposure Point Concentrations [b]			
	Soil and Sludge (0-2 ft bgs)		Soil and Sludge (0-10 ft bgs)	Soil and Sludge	Saturated Vadose Zone	Soil and Sludge (0-2 ft bgs)	Soil and Sludge (0-10 ft bgs)	Soil and Sludge (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
2-Nitrophenol	no	no	no	no	no	–	–	–	–
4-Nitrophenol	no	no	no	no	no	–	–	–	–
n-Nitrosopiperidine	no	no	no	no	no	–	–	–	–
Pentachlorobenzene	no	no	no	no	no	–	–	–	–
Pentachlorophenol	no	no	no	no	no	–	–	–	–
Phenacetin	no	no	no	no	no	–	–	–	–
Phenol	no	no	no	no	no	–	–	–	–
Pyridine	no	no	no	no	no	–	–	–	–
1,2,4,5-Tetrachlorobenzene	no	no	no	no	no	–	–	–	–
2,4,5-Trichlorophenol	no	no	no	no	no	–	–	–	–
2,4,6-Trichlorophenol	no	no	no	no	no	–	–	–	–
Isophorone	no	no	no	no	no	–	–	–	–
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	no	no	no	no	no	–	–	–	–
Acenaphthylene	no	no	no	no	no	–	–	–	–
Anthracene	no	no	no	no	no	–	–	–	–
Benzo(a)anthracene	no	no	no	no	no	–	–	–	–
Benzo(a)pyrene	no	no	no	no	no	–	–	–	–
Benzo(b)fluoranthene	no	no	no	no	no	–	–	–	–
Benzo(g,h,i)perylene	no	no	no	no	no	–	–	–	–
Benzo(k)fluoranthene	no	no	no	no	no	–	–	–	–
1-Chloronaphthalene	no	no	no	no	no	–	–	–	–
2-Chloronaphthalene	no	no	no	no	no	–	–	–	–
7,12-Dimethylbenz(a)anthracene	no	no	no	no	no	–	–	–	–
Fluoranthene	no	no	no	no	no	–	–	–	–
Fluorene	no	no	no	no	no	–	–	–	–
Indeno(1,2,3-cd)pyrene	no	no	no	no	no	–	–	–	–
1-Methylnaphthalene	no	no	no	yes	no	–	–	6.70E-02 m	–
2-Methylnaphthalene	no	no	no	no	no	–	–	–	–
Phenanthrene	no	no	no	yes	no	–	–	5.30E-01 m	–
Pyrene	no	no	no	no	no	–	–	–	–
Pesticides									
Pentachloronitrobenzene	no	no	no	no	no	–	–	–	–
Explosives									
2,6-Dinitrotoluene	no	no	no	no	no	–	–	–	–
Inorganics									
Antimony	no	no	no	no	no	–	–	–	–
Arsenic	no	no	no	no	no	–	–	–	–
Barium	no	no	no	no	no	–	–	–	–
Beryllium	no	no	no	no	no	–	–	–	–
Cadmium	no	no	no	no	no	–	–	–	–

Table E.4-HHRA-5
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	COPC? [a]					Exposure Point Concentrations [b]			
	Soil and Sludge (0-2 ft bgs)		Soil and Sludge (0-10 ft bgs)	Soil and Sludge	Saturated Vadose Zone	Soil and Sludge (0-2 ft bgs)	Soil and Sludge (0-10 ft bgs)	Soil and Sludge (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Chromium	no	no	no	no	no	–	–	–	–
Chromium (Hexavalent)	no	no	no	no	no	–	–	–	–
Cobalt	no	no	no	no	no	–	–	–	–
Copper	no	no	no	no	no	–	–	–	–
Lead	no	no	no	no	no	–	–	–	–
Mercury	no	no	no	no	no	–	–	–	–
Nickel	no	no	no	no	no	–	–	–	–
Selenium	no	no	no	no	no	–	–	–	–
Silver	no	no	no	no	no	–	–	–	–
Thallium	no	no	no	no	no	–	–	–	–
Tin	no	no	no	no	no	–	–	–	–
Vanadium	no	no	no	no	no	–	–	–	–
Zinc	no	no	no	no	no	–	–	–	–

Notes:
– = Not detected/ not analyzed/ not applicable.
CASN = Chemical abstracts registry number.
ft bgs = Feet below ground surface.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
Exposure to lead is evaluated by predicting resultant blood lead levels using the arithmetic average (avg).
The UCLs were calculated using ProUCL 4.0 The UCL used is the one recommended by ProUCL 4.0.

Table E.4-HHRA-6
Summary of Input Parameters
Estimating Vapors Concentrations in Indoor Air Migrating from Total Soil and Sludge
Future Scenario
Solid Waste Management Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
67641	4.05E+01	Acetone
78933	4.60E+01	Methylethylketone (2-butanone)
75150	5.18E+00	Carbon disulfide
75343	6.00E+00	1,1-Dichloroethane
75092	1.40E+01	Methylene chloride
90120	6.70E+01	1-Methylnaphthalene
85018	5.30E+02	Phenanthrene

ENTER Average soil temperature, T_S (^oC)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G45)					
16.7	15	15.24	0	15.24			SCL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SCL	1.55	0.440	0.26	0.0015					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.4-HHRA-7
Intercalculations
Estimating Vapors Concentrations in Indoor Air Migrating from Total Soil and Sludge
Future Scenario
Solid Waste Management Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (µg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	2.72E+02	1.36E+00	2.71E-03	2.93E+05	8.04E-05	2.19E-02
Methylethylketone (2-butanone)	8,336	3.73E-05	1.57E-03	1.77E-04	1.75E-03	1.75E-03	4.21E+02	1.36E+00	1.75E-03	2.97E+08	8.04E-05	3.38E-02
Carbon disulfide	6,630	2.19E-02	9.22E-01	1.77E-04	1.78E-03	1.78E-03	1.39E+04	1.36E+00	1.78E-03	2.06E+08	8.04E-05	1.12E+00
1,1-Dichloroethane	7,376	3.92E-03	1.65E-01	1.77E-04	1.27E-03	1.27E-03	4.23E+03	1.36E+00	1.27E-03	4.20E+11	8.04E-05	3.40E-01
Methylene chloride	6,963	1.56E-03	6.56E-02	1.77E-04	1.74E-03	1.74E-03	4.76E+03	1.36E+00	1.74E-03	3.26E+08	8.04E-05	3.83E-01
1-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	9.38E-04	1.52E+02	1.36E+00	9.38E-04	5.89E+15	8.04E-05	1.22E-02
Phenanthrene	13,840	1.19E-05	5.02E-04	1.77E-04	1.61E-03	1.61E-03	5.95E+00	1.36E+00	1.61E-03	1.60E+09	8.04E-05	4.78E-04

Table E.4-HHRA-8

Estimates of Vapors in Indoor Air Migrating from Total Soil and Sludge

Solid Waste Managment Units 27 (SWMU 27)

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Acetone	4.05E-02		2.19E-02
2-Butanone	4.60E-02	m	3.38E-02
Carbon disulfide	5.18E-03		1.12E+00
1,1-Dichloroethane	6.00E-03	m	3.40E-01
Dichloromethane	1.40E-02	m	3.83E-01
Polycyclic Aromatic Hydrocarbons			
1-Methylnaphthalene	6.70E-02	m	1.22E-02
Phenanthrene	5.30E-01	m	4.78E-04

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

Notes:

$\mu g/m^3$ Micrograms per cubic meter.

mg/kg Milligrams per kilogram.

m Maximum.

[a] EPCs are presented in Table E.4-HHRA-7.

[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004b), as directed by the User's Guide (USEPA, 2003c), consistent with methods in the vapor intrusion guidance (USEPA, 2002c).

Table E.4-HHRA-9
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil and Sludge
Solid Waste Managment Units 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	2.19E-02		NA	NA	–	3.1E+01	1.5E-07	<1%
2-Butanone	3.38E-02	m	NA	NA	–	5.0E+00	1.4E-06	<1%
Carbon disulfide	1.12E+00		NA	NA	–	7.0E-01	3.3E-04	80%
1,1-Dichloroethane	3.40E-01	m	1.60E-03	4.0E-08	75%	NA	NA	–
Dichloromethane	3.83E-01	m	4.70E-04	1.3E-08	25%	1.0E+00	7.9E-05	19%
Polycyclic Aromatic Hydrocarbons								
1-Methylnaphthalene	1.22E-02	m	NA	NA	–	NA	NA	–
Phenanthrene	4.78E-04	m	NA	NA	–	NA	NA	–
			Total ELCR	5E-08	100%	Total HI	0.0004	100%

[a] From Table E.4-HHRA-8.

—	Not applicable.
URF	Inhalation cancer unit risk factor.
ELCR	Excess lifetime cancer risk.
EPCair	Calculated exposure point concentration in indoor air.
HI	Hazard index (sum of the HQs).
HQ	Hazard quotient for non-cancer effects.
m	EPC based on maximum.
mg/m^3	Milligrams per cubic meter.
$\mu g/m^3$	Micrograms per cubic meter.
NA	Not available.
RfC	Inhalation noncancer reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.4-HHRA-10
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil and Sludge
Solid Waste Managment Units 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child and Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	2.19E-02		NA	NA	–	3.1E+01	6.8E-07	<1%
2-Butanone	3.38E-02	m	NA	NA	–	5.0E+00	6.5E-06	<1%
Carbon disulfide	1.12E+00		NA	NA	–	7.0E-01	1.5E-03	80%
1,1-Dichloroethane	3.40E-01	m	1.60E-03	2.2E-07	75%	NA	NA	–
Dichloromethane	3.83E-01	m	4.70E-04	7.4E-08	25%	1.0E+00	3.7E-04	19%
Polycyclic Aromatic Hydrocarbons								
1-Methylnaphthalene	1.22E-02	m	NA	NA	–	NA	NA	–
Phenanthrene	4.78E-04	m	NA	NA	–	NA	NA	–
			Total ELCR	3E-07	100%	Total HI	0.002	100%

[a] From Table E.4-HHRA-8.

—	Not applicable.
URF	Inhalation cancer unit risk factor.
ELCR	Excess lifetime cancer risk.
EPCair	Calculated exposure point concentration in indoor air.
HI	Hazard index (sum of the HQs).
HQ	Hazard quotient for non-cancer effects.
m	EPC based on maximum.
mg/kg/day	Milligrams per kilogram per day.
$\mu g/m^3$	Micrograms per cubic meter.
NA	Not available.
RfC	Inhalation noncancer reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.4-HHRA-11
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Units 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Vapor Migration to Indoor Air	5E-08	0.0004
TOTAL SITE RISKS:	5E-08	0.0004
Hypothetical Future Child and Adult Resident Receptor		
Vapor Migration to Indoor Air	3E-07	0.002
TOTAL SITE RISKS:	3E-07	0.002

Table E.4.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	Ecological Screening Level (ESLs) [a] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	SLERA COPEC? [c] Rational
Volatile Organic Compounds												
Acetone	6	/	40	15.0	0.4	0.017		2.5	*R5*	0.2	no	HQ ≤ 1
Acetophenone	0	/	40	0	–	17		300	*R5*	NA	no	ND
Acrylonitrile	0	/	40	0	–	0.014		1,000	*R4*	NA	no	ND
Benzene	0	/	40	0	–	0.014		0.05	*R4*	NA	no	ND
Bis(2-chloro-1-methylethyl)ether	0	/	40	0	–	17		19.9	*R5*	NA	no	ND
Bromobenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Bromodichloromethane	0	/	40	0	–	0.014		0.54	*R5*	NA	no	ND
Bromomethane	0	/	40	0	–	0.014		0.235	*R5*	NA	no	ND
2-Butanone	3	/	40	7.50	0.046	0.0067		89.6	*R5*	0.0005	no	HQ ≤ 1
n-Butylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
sec-Butylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
tert-Butylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Carbon disulfide	10	/	40	25.0	0.037	0.0067		0.09412	*R5*	0.4	no	HQ ≤ 1
Carbon tetrachloride	0	/	40	0	–	0.014		1,000	*R4*	NA	no	ND
Chlorobenzene	0	/	40	0	–	0.014		0.05	*R4*	NA	no	ND
Chloroethane	0	/	40	0	–	0.014		NA		NA	no	ND
Chloroform	0	/	40	0	–	0.014	^	0.001	*R4*	NA	no	ND
Chloromethane	0	/	40	0	–	0.014		10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	40	0	–	17	^	0.243	*R5*	NA	no	ND
2-Chlorotoluene	0	/	40	0	–	0.014		NA		NA	no	ND
4-Chlorotoluene	0	/	40	0	–	0.014		NA		NA	no	ND
Dibenzofuran	0	/	40	0	–	17		600	*R4s*	NA	no	ND
1,2-Dibromoethane	0	/	40	0	–	0.014		1.23	*R5*	NA	no	ND
Dibromomethane	0	/	40	0	–	0.014		65	*R5*	NA	no	ND
1,1-Dichloroethane	3	/	40	7.50	0.006	0.014		20.1	*R5*	0.0003	no	HQ ≤ 1
1,2-Dichloroethane	0	/	40	0	–	0.014		0.4	*R4*	NA	no	ND
cis-1,2-Dichloroethene	0	/	40	0	–	0.014		NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	40	0	–	0.014		0.784	*R5*	NA	no	ND
Methylene chloride	4	/	40	10.0	0.014	0.034		2	*R4*	0.007	no	HQ ≤ 1
1,2-Dichloropropane	0	/	40	0	–	0.014		700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	40	0	–	0.014		700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	40	0	–	0.014		700	*R4s*	NA	no	ND
1,1-Dichloropropene	0	/	40	0	–	0.014		NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	40	0	–	0.014		0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	40	0	–	0.014		0.398	*R5*	NA	no	ND
Ethylbenzene	0	/	40	0	–	0.014		0.05	*R4*	NA	no	ND
Iodomethane	0	/	40	0	–	0.014		1.23	*R5*	NA	no	ND
Isopropylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Nitrobenzene	0	/	40	0	–	17		40	*R4*	NA	no	ND
n-Propylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Tetrachloroethene	0	/	40	0	–	0.014		9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	40	0	–	0.014		225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	40	0	–	0.014		0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	40	0	–	0.014		29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	40	0	–	0.014		28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	40	0	–	0.014		11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	40	0	–	0.014		3.36	*R5*	NA	no	ND

Table E.4.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	Rational
1,2,4-Trimethylbenzene	0	/	40	0	–	0.014		0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	40	0	–	0.014		0.05	*R4s*	NA	no	ND
Vinyl chloride	0	/	40	0	–	0.014	^	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	40	0	–	0.027		0.05	*R4s*	NA	no	ND
o-Xylene	0	/	40	0	–	0.014		0.05	*R4s*	NA	no	ND
Semi Volatile Organic Compounds												
4-Aminobiphenyl	0	/	40	0	–	17	^	0.00305	*R5*	NA	no	ND
Aniline	0	/	40	0	–	17	^	0.0568	*R5*	NA	no	ND
Benzidine	0	/	40	0	–	17		NA		NA	no	ND
Benzoic acid	0	/	40	0	–	17		NA		NA	no	ND
Benzyl alcohol	0	/	40	0	–	17		65.8	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
4-Chloro-3-methylphenol	0	/	40	0	–	17	^	7.95	*R5*	NA	no	ND
3,3'-Dichlorobenzidine	0	/	40	0	–	17	^	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	40	0	–	17		87.5	*R5*	NA	no	ND
2,6-Dichlorophenol	0	/	40	0	–	17	^	1.17	*R5*	NA	no	ND
2,4-Dimethylphenol	0	/	40	0	–	17	^	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	40	0	–	17		20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	40	0	–	17	^	1.28	*R5*	NA	no	ND
Di-n-butyl phthalate	1	/	40	2.50	0.042	17		200	*R4*	0.0002	no	HQ ≤ 1
Diphenylamine	0	/	40	0	–	17	^	1.01	*R5*	NA	no	ND
Diphenylhydrazine	0	/	40	0	–	17		NA		NA	no	ND
Ethyl methanesulfonate	0	/	40	0	–	17		NA		NA	no	ND
Hexachlorobenzene	0	/	40	0	–	17	^	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	40	0	–	17	^	10	*R4*	NA	no	ND
Hexachloroethane	0	/	40	0	–	17	^	0.596	*R5*	NA	no	ND
4,6-Dinitro-2-methylphenol	0	/	40	0	–	17	^	0.144	*R5*	NA	no	ND
Methyl methanesulfonate	0	/	40	0	–	17	^	0.315	*R5*	NA	no	ND
2-Methylphenol	0	/	40	0	–	17		40.4	*R5*	NA	no	ND
1-Naphthylamine	0	/	40	0	–	17	^	9.34	*R5*	NA	no	ND
2-Naphthylamine	0	/	40	0	–	17	^	3.03	*R5*	NA	no	ND
2-Nitroaniline	0	/	40	0	–	17		74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	40	0	–	17	^	3.16	*R5*	NA	no	ND
2-Nitrophenol	0	/	40	0	–	17	^	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	40	0	–	17	^	5.12	*R5*	NA	no	ND
n-Nitrosopiperidine	0	/	40	0	–	17	^	0.0065	*R5*	NA	no	ND
Pentachlorobenzene	0	/	40	0	–	17	^	0.0025	*R4*	NA	no	ND
Pentachlorophenol	0	/	40	0	–	17	^	2.1	*EcoSSL*	NA	no	ND
Phenacetin	0	/	40	0	–	17	^	11.7	*R5*	NA	no	ND
Phenol	0	/	40	0	–	17		120	*R5*	NA	no	ND
Pyridine	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
1,2,4,5-Tetrachlorobenzene	0	/	40	0	–	17	^	2.02	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	40	0	–	17	^	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	40	0	–	17	^	10	*R4*	NA	no	ND
Isophorone	2	/	40	5.00	0.53	17		139	*R5*	0.004	no	HQ ≤ 1

Table E.4.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	Rational
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/	40	0	–	17		20	*R4*	NA	no	ND
Acenaphthylene	0	/	40	0	–	17		682	*R5*	NA	no	ND
Anthracene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	40	0	–	17	^	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	40	0	–	17	^	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	40	0	–	17		119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	40	0	–	17		148	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	40	0	–	17	^	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	40	0	–	17	^	0.0122	*R5*	NA	no	ND
7,12-Dimethylbenz(a)anthracene	0	/	40	0	–	17	^	5.21	*R5s*	NA	no	ND
Fluoranthene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Fluorene	0	/	40	0	–	17		122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	40	0	–	17		109	*R5*	NA	no	ND
1-Methylnaphthalene	1	/	40	2.50	0.067	17		3.24	*R5s*	0.02	no	HQ ≤ 1
2-Methylnaphthalene	0	/	40	0	–	17	^	3.24	*R5*	NA	no	ND
Phenanthrene	1	/	40	2.50	0.53	17		0.1	*R4*	5	**YES**	HQ > 1
Pyrene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Pesticides												
Pentachloronitrobenzene	0	/	40	0	–	17	^	7.09	*R5*	NA	no	ND
Explosives												
2,6-Dinitrotoluene	0	/	40	0	–	17	^	0.0328	*R5*	NA	no	ND
Inorganics												
Antimony	1	/	10	10.0	2.62	2		0.27	*EcoSSL*	10	**YES**	HQ > 1
Arsenic	4	/	50	8.00	1.77	3.76		18	*EcoSSL*	0.1	no	HQ ≤ 1
Barium	50	/	50	100	110	–		330	*EcoSSL*	0.3	no	HQ ≤ 1
Beryllium	0	/	10	0	–	0.5		21	*EcoSSL*	NA	no	ND
Cadmium	6	/	50	12.0	2.08	1.36		0.36	*EcoSSL*	6	**YES**	HQ > 1
Chromium	60	/	60	100	27.1	–		26	*EcoSSL*	1	no	HQ ≤ 1
Chromium (Hexavalent)	0	/	60	0	–	19.3		130	*EcoSSL*	NA	no	ND
Cobalt	2	/	10	20.0	1.23	0.5		13	*EcoSSL*	0.09	no	HQ ≤ 1
Copper	10	/	10	100	330	–		28	*EcoSSL*	10	**YES**	HQ > 1
Lead	7	/	50	14.0	62.5	6.82		11	*EcoSSL*	6	**YES**	HQ > 1
Mercury	22	/	50	44.0	1.44	0.045		0.1	*R4*	10	**YES**	HQ > 1
Nickel	7	/	10	70.0	4.74	0.5		38	*EcoSSL*	0.1	no	HQ ≤ 1
Selenium	2	/	50	4.00	2.33	13.6		0.52	*EcoSSL*	4	**YES**	HQ > 1
Silver	0	/	50	0	–	1.7		4.2	*EcoSSL*	NA	no	ND
Thallium	0	/	10	0	–	10	^	1	*R4*	NA	no	ND
Tin	1	/	10	10.0	5.74	2		53	*R4*	0.1	no	HQ ≤ 1
Vanadium	10	/	10	100	10.5	–		7.8	*EcoSSL*	1	no	HQ ≤ 1
Zinc	10	/	10	100	222	–		46	*EcoSSL*	5	**YES**	HQ > 1

Notes:
^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
ND = Not detected.

Table E.4.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD)		Maximum Concentration		Ecological Screening Level (ESLs) [a] (mg/kg)		Maximum Hazard Quotient (HQ) [b]	SLERA COPEC? [c]	
	number of detects / number of samples	FOD %	Detect (mg/kg)	SQL (mg/kg)	Value	*Source*	(unitless)	(YES/no)	Rational

SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] See Table ERA-1 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[b] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[c] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND).

Table E.4.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	Rational
Volatile Organic Compounds												
Acetone	6	/	40	15.0	0.4	0.017		2.5	*R5*	0.2	no	HQ ≤ 1
Acetophenone	0	/	40	0	–	17		300	*R5*	NA	no	ND
Acrylonitrile	0	/	40	0	–	0.014		1,000	*R4*	NA	no	ND
Benzene	0	/	40	0	–	0.014		0.05	*R4*	NA	no	ND
Bis(2-chloro-1-methylethyl)ether	0	/	40	0	–	17		19.9	*R5*	NA	no	ND
Bromobenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Bromodichloromethane	0	/	40	0	–	0.014		0.54	*R5*	NA	no	ND
Bromomethane	0	/	40	0	–	0.014		0.235	*R5*	NA	no	ND
2-Butanone	3	/	40	7.50	0.046	0.0067		89.6	*R5*	0.0005	no	HQ ≤ 1
n-Butylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
sec-Butylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
tert-Butylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Carbon disulfide	10	/	40	25.0	0.037	0.0067		0.09412	*R5*	0.4	no	HQ ≤ 1
Carbon tetrachloride	0	/	40	0	–	0.014		1,000	*R4*	NA	no	ND
Chlorobenzene	0	/	40	0	–	0.014		0.05	*R4*	NA	no	ND
Chloroethane	0	/	40	0	–	0.014		NA		NA	no	ND
Chloroform	0	/	40	0	–	0.014	^	0.001	*R4*	NA	no	ND
Chloromethane	0	/	40	0	–	0.014		10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	40	0	–	17	^	0.243	*R5*	NA	no	ND
2-Chlorotoluene	0	/	40	0	–	0.014		NA		NA	no	ND
4-Chlorotoluene	0	/	40	0	–	0.014		NA		NA	no	ND
Dibenzofuran	0	/	40	0	–	17		600	*R4s*	NA	no	ND
1,2-Dibromoethane	0	/	40	0	–	0.014		1.23	*R5*	NA	no	ND
Dibromomethane	0	/	40	0	–	0.014		65	*R5*	NA	no	ND
1,1-Dichloroethane	3	/	40	7.50	0.006	0.014		20.1	*R5*	0.0003	no	HQ ≤ 1
1,2-Dichloroethane	0	/	40	0	–	0.014		0.4	*R4*	NA	no	ND
cis-1,2-Dichloroethene	0	/	40	0	–	0.014		NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	40	0	–	0.014		0.784	*R5*	NA	no	ND
Methylene chloride	4	/	40	10.0	0.014	0.034		2	*R4*	0.007	no	HQ ≤ 1
1,2-Dichloropropane	0	/	40	0	–	0.014		700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	40	0	–	0.014		700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	40	0	–	0.014		700	*R4s*	NA	no	ND
1,1-Dichloropropene	0	/	40	0	–	0.014		NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	40	0	–	0.014		0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	40	0	–	0.014		0.398	*R5*	NA	no	ND
Ethylbenzene	0	/	40	0	–	0.014		0.05	*R4*	NA	no	ND
Iodomethane	0	/	40	0	–	0.014		1.23	*R5*	NA	no	ND
Isopropylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND
Nitrobenzene	0	/	40	0	–	17		40	*R4*	NA	no	ND
n-Propylbenzene	0	/	40	0	–	0.014		NA		NA	no	ND

Table E.4.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	Rational
Tetrachloroethene	0	/	40	0	–	0.014		9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	40	0	–	0.014		225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	40	0	–	0.014		0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	40	0	–	0.014		29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	40	0	–	0.014		28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	40	0	–	0.014		11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	40	0	–	0.014		3.36	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	40	0	–	0.014		0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	40	0	–	0.014		0.05	*R4s*	NA	no	ND
Vinyl chloride	0	/	40	0	–	0.014	^	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	40	0	–	0.027		0.05	*R4s*	NA	no	ND
o-Xylene	0	/	40	0	–	0.014		0.05	*R4s*	NA	no	ND
Semi Volatile Organic Compounds												
4-Aminobiphenyl	0	/	40	0	–	17	^	0.00305	*R5*	NA	no	ND
Aniline	0	/	40	0	–	17	^	0.0568	*R5*	NA	no	ND
Benzidine	0	/	40	0	–	17		NA		NA	no	ND
Benzoic acid	0	/	40	0	–	17		NA		NA	no	ND
Benzyl alcohol	0	/	40	0	–	17		65.8	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
4-Chloro-3-methylphenol	0	/	40	0	–	17	^	7.95	*R5*	NA	no	ND
3,3'-Dichlorobenzidine	0	/	40	0	–	17	^	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	40	0	–	17		87.5	*R5*	NA	no	ND
2,6-Dichlorophenol	0	/	40	0	–	17	^	1.17	*R5*	NA	no	ND
2,4-Dimethylphenol	0	/	40	0	–	17	^	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	40	0	–	17		20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	40	0	–	17	^	1.28	*R5*	NA	no	ND
Di-n-butyl phthalate	1	/	40	2.50	0.042	17		200	*R4*	0.0002	no	HQ ≤ 1
Diphenylamine	0	/	40	0	–	17	^	1.01	*R5*	NA	no	ND
Diphenylhydrazine	0	/	40	0	–	17		NA		NA	no	ND
Ethyl methanesulfonate	0	/	40	0	–	17		NA		NA	no	ND
Hexachlorobenzene	0	/	40	0	–	17	^	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	40	0	–	17	^	10	*R4*	NA	no	ND
Hexachloroethane	0	/	40	0	–	17	^	0.596	*R5*	NA	no	ND
4,6-Dinitro-2-methylphenol	0	/	40	0	–	17	^	0.144	*R5*	NA	no	ND
Methyl methanesulfonate	0	/	40	0	–	17	^	0.315	*R5*	NA	no	ND
2-Methylphenol	0	/	40	0	–	17		40.4	*R5*	NA	no	ND
1-Naphthylamine	0	/	40	0	–	17	^	9.34	*R5*	NA	no	ND
2-Naphthylamine	0	/	40	0	–	17	^	3.03	*R5*	NA	no	ND
2-Nitroaniline	0	/	40	0	–	17		74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	40	0	–	17	^	3.16	*R5*	NA	no	ND
2-Nitrophenol	0	/	40	0	–	17	^	1.6	*R5*	NA	no	ND

Table E.4.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects	/	number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	Rational
4-Nitrophenol	0	/	40	0	–	17	^	5.12	*R5*	NA	no	ND
n-Nitrosopiperidine	0	/	40	0	–	17	^	0.0065	*R5*	NA	no	ND
Pentachlorobenzene	0	/	40	0	–	17	^	0.0025	*R4*	NA	no	ND
Pentachlorophenol	0	/	40	0	–	17	^	2.1	*EcoSSL*	NA	no	ND
Phenacetin	0	/	40	0	–	17	^	11.7	*R5*	NA	no	ND
Phenol	0	/	40	0	–	17		120	*R5*	NA	no	ND
Pyridine	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
1,2,4,5-Tetrachlorobenzene	0	/	40	0	–	17	^	2.02	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	40	0	–	17	^	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	40	0	–	17	^	10	*R4*	NA	no	ND
Isophorone	2	/	40	5.00	0.53	17		139	*R5*	0.004	no	HQ ≤ 1
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/	40	0	–	17		20	*R4*	NA	no	ND
Acenaphthylene	0	/	40	0	–	17		682	*R5*	NA	no	ND
Anthracene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	40	0	–	17	^	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	40	0	–	17	^	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	40	0	–	17		119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	40	0	–	17		148	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	40	0	–	17	^	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	40	0	–	17	^	0.0122	*R5*	NA	no	ND
7,12-Dimethylbenz(a)anthracene	0	/	40	0	–	17	^	5.21	*R5s*	NA	no	ND
Fluoranthene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Fluorene	0	/	40	0	–	17		122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	40	0	–	17		109	*R5*	NA	no	ND
1-Methylnaphthalene	1	/	40	2.50	0.067	17		3.24	*R5s*	0.02	no	HQ ≤ 1
2-Methylnaphthalene	0	/	40	0	–	17	^	3.24	*R5*	NA	no	ND
Phenanthrene	1	/	40	2.50	0.53	17		0.1	*R4*	5	**YES**	HQ > 1
Pyrene	0	/	40	0	–	17	^	0.1	*R4*	NA	no	ND
Pesticides												
Pentachloronitrobenzene	0	/	40	0	–	17	^	7.09	*R5*	NA	no	ND
Explosives												
2,6-Dinitrotoluene	0	/	40	0	–	17	^	0.0328	*R5*	NA	no	ND
Inorganics												
Antimony	1	/	10	10.0	2.62	2		0.27	*EcoSSL*	10	**YES**	HQ > 1
Arsenic	4	/	50	8.00	1.77	3.76		18	*EcoSSL*	0.1	no	HQ ≤ 1
Barium	50	/	50	100	110	–		330	*EcoSSL*	0.3	no	HQ ≤ 1
Beryllium	0	/	10	0	–	0.5		21	*EcoSSL*	NA	no	ND
Cadmium	6	/	50	12.0	2.08	1.36		0.36	*EcoSSL*	6	**YES**	HQ > 1
Chromium	60	/	60	100	27.1	–		26	*EcoSSL*	1	no	HQ ≤ 1

Table E.4.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil and Sludge
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Ecological Screening Level (ESLs) [a] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [b] (unitless)	SLERA COPEC? [c] (YES/no)	Rational
Chromium (Hexavalent)	0	/	60	0	–	19.3		130	*EcoSSL*	NA	no	ND
Cobalt	2	/	10	20.0	1.23	0.5		13	*EcoSSL*	0.09	no	HQ ≤ 1
Copper	10	/	10	100	330	–		28	*EcoSSL*	10	**YES**	HQ > 1
Lead	7	/	50	14.0	62.5	6.82		11	*EcoSSL*	6	**YES**	HQ > 1
Mercury	22	/	50	44.0	1.44	0.045		0.1	*R4*	10	**YES**	HQ > 1
Nickel	7	/	10	70.0	4.74	0.5		38	*EcoSSL*	0.1	no	HQ ≤ 1
Selenium	2	/	50	4.00	2.33	13.6		0.52	*EcoSSL*	4	**YES**	HQ > 1
Silver	0	/	50	0	–	1.7		4.2	*EcoSSL*	NA	no	ND
Thallium	0	/	10	0	–	10	^	1	*R4*	NA	no	ND
Tin	1	/	10	10.0	5.74	2		53	*R4*	0.1	no	HQ ≤ 1
Vanadium	10	/	10	100	10.5	–		7.8	*EcoSSL*	1	no	HQ ≤ 1
Zinc	10	/	10	100	222	–		46	*EcoSSL*	5	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
ND = Not detected.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] See Table ERA-1 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[b] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[c] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND).

Table E.4.ERA-3
BERA Constituents of Potential Ecological Concern in Soil and Sludge
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Polycyclic Aromatic Hydrocarbons								
Phenanthrene	0.53	m	0.1	*R4*	5	**YES**	**HQ > 1**	YES
Inorganics								
Antimony	2.62	m	0.27	*EcoSSL*	10	**YES**	**HQ > 1**	no
Cadmium	0.283		0.36	*EcoSSL*	0.8	no	HQ ≤ 1	YES
Copper	203.3		28	*EcoSSL*	7	**YES**	**HQ > 1**	YES
Lead	9.341		11	*EcoSSL*	0.8	no	HQ ≤ 1	YES
Mercury	0.108		0.1	*R4*	1	no	HQ ≤ 1	no
Selenium	2.33	m	0.52	*EcoSSL*	4	**YES**	**HQ > 1**	YES
Zinc	82.84		46	*EcoSSL*	2	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SQL = Sample Quantitation Limit.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.00.04, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-1 for sources of ecological screening levels (ESLs).
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table ERA-1 for source of bioaccumulation potential designation.

Table E.4.ERA-4
BERA Constituents of Potential Ecological Concern in Soil and Sludge
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Polycyclic Aromatic Hydrocarbons								
Phenanthrene	0.53	m	0.1	*R4*	5	**YES**	**HQ > 1**	YES
Inorganics								
Antimony	2.62	m	0.27	*EcoSSL*	10	**YES**	**HQ > 1**	no
Cadmium	0.283		0.36	*EcoSSL*	0.8	no	HQ ≤ 1	YES
Copper	203.3		28	*EcoSSL*	7	**YES**	**HQ > 1**	YES
Lead	9.341		11	*EcoSSL*	0.8	no	HQ ≤ 1	YES
Mercury	0.108		0.1	*R4*	1	no	HQ ≤ 1	no
Selenium	2.33	m	0.52	*EcoSSL*	4	**YES**	**HQ > 1**	YES
Zinc	82.84		46	*EcoSSL*	2	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SQL = Sample Quantitation Limit.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.00.04, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-1 for sources of ecological screening levels (ESLs).
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table ERA-1 for source of bioaccumulation potential designation.

Table E.4.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Uptake Model Exposure Point Concentrations in Soil and Sludge
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]							
	BERA COPEC?		0-2 ft bgs				0-10 ft bgs			
Constituent	**0-2 ft bgs**	**0-10 ft bgs**	**Maximum Scenario**		**Refined Scenario**		**Maximum Scenario**		**Refined Scenario**	
Polycyclic Aromatic Hydrocarbons										
Phenanthrene	YES	YES	0.53	m	0.53	m	0.53	m	0.53	m
Inorganics										
Antimony	YES	YES	NB		NB		NB		NB	
Copper	YES	YES	203.3		43.2		203.3		43.2	
Selenium	YES	YES	2.33	m	2.33	m	2.33	m	2.33	m
Zinc	YES	YES	82.84		37		82.84		37	

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
ft bgs = Feet below ground surface.

mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
NB = Not bioaccumulative.
SQL = Sample Quantitation Limit.

[a]

The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.00.04; the UCL used is the one recommended by ProUCL 4.00.04. EPCs marked with "m" are based on the maximum detected concentration.

Table E.4.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	5.72E-01	6.86E-02	0.048	660	66	0.00007	0.0007
Inorganics									
Copper	203.3		1.58E+01	1.90E+00	1.7	56	5.6	0.03	0.3
Selenium	2.33	m	1.29E+00	1.55E-01	0.11	1.4	0.14	0.08	0.8
Zinc	82.84		5.58E+01	6.70E+00	4.8	750	75	0.006	0.06

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons											
Phenanthrene	0.53	m	2.87E-01	5.72E-01	1.52E-01	6.86E-02	0.049	660	66	0.00007	0.0007
Inorganics											
Copper	43.2		1.03E-01	8.60E+00	4.45E+00	1.03E+00	0.82	56	5.6	0.01	0.1
Selenium	2.33	m	1.72E+00	1.29E+00	2.88E-01	1.55E-01	0.11	1.4	0.14	0.08	0.8
Zinc	37		2.80E+02	3.57E+01	4.67E+01	4.29E+00	3.3	750	75	0.004	0.04

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	2.87E-01	1.52E-01	0.19	660	66	0.0003	0.003
Inorganics									
Copper	203.3		1.03E-01	2.09E+01	26	56	5.6	0.5	5
Selenium	2.33	m	1.72E+00	2.88E-01	0.36	1.4	0.14	0.3	3
Zinc	82.84		3.64E+02	6.08E+01	74	750	75	0.1	1

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	2.87E-01	1.52E-01	0.19	660	66	0.0003	0.003
Inorganics									
Copper	43.2		1.03E-01	4.45E+00	5.6	56	5.6	0.1	1
Selenium	2.33	m	1.72E+00	2.88E-01	0.36	1.4	0.14	0.3	3
Zinc	37		2.80E+02	4.67E+01	57	750	75	0.08	0.8

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydroc									
Phenanthrene	0.53	m	1.12E-02	5.94E-03	0.0012	660	66	0.000002	0.00002
Inorganics									
Copper	203.3		1.66E+01	5.31E+00	0.79	56	5.6	0.01	0.1
Selenium	2.33	m	9.07E-01	2.90E-01	0.034	1.4	0.14	0.02	0.2
Zinc	82.84		1.07E+02	3.43E+01	3.9	750	75	0.005	0.05

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydr													
Phenanthrene	0.53	m	2.87E-01	5.72E-01	1.12E-02	1.52E-01	6.86E-02	5.94E-03	0.00000095	660	66	1E-09	0.00000001
Inorganics													
Copper	43.2		1.03E-01	8.60E+00	1.33E+01	4.45E+00	1.03E+00	4.25E+00	0.00034	56	5.6	0.000006	0.00006
Selenium	2.33	m	1.72E+00	1.29E+00	9.07E-01	2.88E-01	1.55E-01	2.90E-01	0.000023	1.4	0.14	0.00002	0.0002
Zinc	37		2.80E+02	3.57E+01	1.01E+02	4.67E+01	4.29E+00	3.24E+01	0.0024	750	75	0.000003	0.00003

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil and Sludge 0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	1.12E-02	5.94E-03	0.0012	660	66	0.000002	0.00002
Inorganics									
Copper	203.3		1.66E+01	5.31E+00	0.79	56	5.6	0.01	0.1
Selenium	2.33	m	9.07E-01	2.90E-01	0.034	1.4	0.14	0.02	0.2
Zinc	82.84		1.07E+02	3.43E+01	3.9	750	75	0.005	0.05

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil and Sludge 0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons													
Phenanthrene	0.53	m	2.87E-01	5.72E-01	1.12E-02	1.52E-01	6.86E-02	5.94E-03	0.00000095	660	66	1E-09	1E-08
Inorganics													
Copper	43.2		1.03E-01	8.60E+00	1.33E+01	4.45E+00	1.03E+00	4.25E+00	0.00034	56	5.6	0.000006	0.00006
Selenium	2.33	m	1.72E+00	1.29E+00	9.07E-01	2.88E-01	1.55E-01	2.90E-01	0.000023	1.4	0.14	0.00002	0.0002
Zinc	37		2.80E+02	3.57E+01	1.01E+02	4.67E+01	4.29E+00	3.24E+01	0.0024	750	75	0.000003	0.00003

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-10 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	5.72E-01	6.86E-02	0.052	NA	NA	NA	NA
Inorganics									
Copper	203.3		1.58E+01	1.90E+00	2.2	40.5	4.05	0.05	0.5
Selenium	2.33	m	1.29E+00	1.55E-01	0.12	2.9	0.29	0.04	0.4
Zinc	82.84		5.58E+01	6.70E+00	5.2	661	66.1	0.008	0.08

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-9 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons											
Phenanthrene	0.53	m	2.87E-01	5.72E-01	1.52E-01	6.86E-02	0.00016	NA	NA	NA	NA
Inorganics											
Copper	43.2		1.03E-01	8.60E+00	4.45E+00	1.03E+00	0.003	40.5	4.05	0.00007	0.0007
Selenium	2.33	m	1.72E+00	1.29E+00	2.88E-01	1.55E-01	0.00038	2.9	0.29	0.0001	0.001
Zinc	37		2.80E+02	3.57E+01	4.67E+01	4.29E+00	0.011	661	66.1	0.00002	0.0002

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-9 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	2.87E-01	1.52E-01	0.18	NA	NA	NA	NA
Inorganics									
Copper	203.3		1.03E-01	2.09E+01	26	40.5	4.05	0.6	6
Selenium	2.33	m	1.72E+00	2.88E-01	0.36	2.9	0.29	0.1	1
Zinc	82.84		3.64E+02	6.08E+01	68	661	66.1	0.1	1

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-9 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons											
Phenanthrene	0.53	m	2.87E-01	5.72E-01	1.52E-01	6.86E-02	0.067	NA	NA	NA	NA
Inorganics											
Copper	43.2		1.03E-01	8.60E+00	4.45E+00	1.03E+00	2.1	40.5	4.05	0.05	0.5
Selenium	2.33	m	1.72E+00	1.29E+00	2.88E-01	1.55E-01	0.14	2.9	0.29	0.05	0.5
Zinc	37		2.80E+02	3.57E+01	4.67E+01	4.29E+00	18	661	66.1	0.03	0.3

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-9 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	1.12E-02	5.94E-03	0.0021	NA	NA	NA	NA
Inorganics									
Copper	203.3		1.66E+01	5.31E+00	1.5	40.5	4.05	0.04	0.4
Selenium	2.33	m	9.07E-01	2.90E-01	0.075	2.9	0.29	0.03	0.3
Zinc	82.84		1.07E+02	3.43E+01	8.6	661	66.1	0.01	0.1

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NA = Not applicable.
NOAEL = No observed adverse effect level.
TRV = Toxicity reference value.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table ERA-7 for receptor exposure assumptions.
[e] See Table ERA-9 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	0.53	m	1.12E-02	5.94E-03	0.0000017	NA	NA	NA	NA
Inorganics									
Copper	43.2		1.33E+01	4.25E+00	0.00089	40.5	4.05	0.00002	0.0002
Selenium	2.33	m	9.07E-01	2.90E-01	0.00006	2.9	0.29	0.00002	0.0002
Zinc	37		1.01E+02	3.24E+01	0.0065	661	66.1	0.00001	0.0001

Notes:

HQ =	Hazard Quotient.
LOAEL =	Lowest observed adverse effect level.
mg/kg =	Milligrams per kilogram.
mg/kg-BW-day =	Milligrams per kilogram of body weight each day.
NA =	Not applicable.
NOAEL =	No observed adverse effect level.
TRV =	Toxicity reference value.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.

[b] See Table ERA-8 for sources of soil bioaccumulation factors/uptake equations.

[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).

[d] See Table ERA-7 for receptor exposure assumptions.

[e] See Table ERA-9 for sources of avian toxicity reference values.

[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.4.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil and Sludge 0-2 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Mourning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons																			
Phenanthrene	1	-	40	0.53	5	R4		0.00007	0.0007	0.0003	0.003	1E-09	1E-08	–	–	–	–	–	–
Inorganics																			
Copper	10	-	10	43.2	7	EcoSSL	avi	0.01	0.1	0.1	1	0.000006	0.00006	0.00007	0.0007	0.05	0.5	0.00002	0.0002
Selenium	2	-	50	2.33	4	EcoSSL	veg	0.08	0.8	0.3	**3**	0.00002	0.0002	0.0001	0.001	0.05	0.5	0.00002	0.0002
Zinc	10	-	10	37	2	EcoSSL	avi	0.004	0.04	0.08	0.8	0.000003	0.00003	0.00002	0.0002	0.03	0.3	0.00001	0.0001

Notes:

– =	Not applicable/not available.
COPEC =	Constituent of Potential Ecological Concern.
BERA =	Baseline Ecological Risk Assessment.
EPC =	The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
	EPCs marked with "m" are the maximum concentration.
ESL =	Ecological Screening Critiera.
FOD =	Frequency of Detection.
LOAEL =	Lowest observed adverse effect level.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
NOAEL =	No observed adverse effect level.
[a]	Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b]	See Table ERA-1 for sources of ecological screening levels (ESLs).
	R4: Region 4 Ecological Screening Values (USEPA 2001d; R4).
	EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005; EcoSSL).
	Where readily available (i.e., EcoSSLs), the basis of the ecological screening level is presented.
[c]	Food chain modeling was conducted for bioaccumulative COPECs.

Table E.4.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil and Sludge 0-10 foot Depth Interval
Solid Waste Managment Unit 27 (SWMU 27)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment				
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Results of Refined Food Chain Models [c] Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Polycyclic Aromatic Hydrocarbons									
Phenanthrene	1	-	40	0.53	5	R4		0.000000001	0.00000001
Inorganics									
Copper	10	-	10	43.2	7	EcoSSL	avi	0.000006	0.00006
Selenium	2	-	50	2.33	4	EcoSSL	veg	0.00002	0.0002
Zinc	10	-	10	37	2	EcoSSL	avi	0.000003	0.00003

Notes:

– = Not applicable.
COPEC = Constituent of Potential Ecological Concern.
BERA = Baseline Ecological Risk Assessment.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
FOD = Frequency of Detection.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NA = Not available.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table ERA-1 for sources of ecological screening levels (ESLs).
R4: Region 4 Ecological Screening Values (USEPA 2001d; R4).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005; EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ecological screening level is presented.
[c] Food chain modeling was conducted for bioaccumulative COPECs.

Table E.5.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrylonitrile	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Benzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromodichloromethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromomethane	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
2-Butanone	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
tert-Butyl alcohol	0	-	3	0	–	-	–	0.2	-	0.2	–	0.1	–
n-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
sec-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
tert-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon disulfide	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon tetrachloride	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-11	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorobromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorodibromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Chloroform	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloromethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorotoluene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Chlorotoluene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Cymene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dibromoethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Dibromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dichlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,4-Dichlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,4-Dichlorobutene	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
1,1-Dichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloroethylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,2-Dichloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,2-Dichloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.5.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Dichloromethane	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2,2-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,3-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,3-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Ethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Iodomethane	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Isopropyl alcohol	0	-	3	0	–	-	–	0.2	-	0.2	–	0.1	–
Isopropylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
m-Dichlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Methyl n-butyl ketone	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Methyl-2-pentanone (MIBK)	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Methyl tert-Butyl Ether (MTBE)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
n-Propylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Styrene (monomer)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Tetrachloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,1,2-Tetrachloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2,2-Tetrachloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,1-Trichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2-Trichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2,3-Trichlorobenzene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2,4-Trichlorobenzene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,4-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3,5-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Trichloroethylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
m,p-Xylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
o-Xylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Semi Volatile Organic Compounds													
Benzyl alcohol	0	-	3	0	–	-	–	0.25	-	0.25	–	0.125	–
2-Butoxy ethanol	0	-	3	0	–	-	–	0.25	-	0.25	–	0.125	–
1,4-Dioxane	0	-	3	0	–	-	–	0.5	-	0.5	–	0.25	–
Hexachloro-1,3-butadiene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–

Table E.5.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Tribromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Polycyclic Aromatic Hydrocarbons													
Naphthalene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	-	3	0	–	-	–	50	-	50	–	25	–
Gasoline Range Organics (GRO)	0	-	3	0	–	-	–	1	-	1	–	0.5	–
Inorganics													
Arsenic	0	-	3	0	–	-	–	2	-	2	–	1	–
Barium	3	-	3	100	26.3	-	27.6	–	-	–	HLSF-SB-029(9/27/2006)	27	–
Cadmium	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
Chromium	3	-	3	100	2.97	-	3.18	–	-	–	HLSF-SB-031(9/27/2006)	3.09	–
Chromium (Hexavalent)	0	-	3	0	–	-	–	0.4	-	0.4	–	0.2	–
Lead	1	-	3	33.3	3.3	-	3.3	1	-	1	HLSF-SB-030(9/27/2006)	1.43	–
Mercury	0	-	3	0	–	-	–	0.04	-	0.04	–	0.02	–
Phosphorus	3	-	3	100	55.4	-	80.1	–	-	–	HLSF-SB-030(9/27/2006)	71.5	–
Potassium	3	-	3	100	67.7	-	368	–	-	–	HLSF-SB-031(9/27/2006)	262	–
Selenium	0	-	3	0	–	-	–	1	-	1	–	0.5	–
Silver	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Sodium	1	-	3	33.3	262	-	262	50	-	50	HLSF-SB-031(9/27/2006)	104	–
Zinc	3	-	3	100	3.75	-	43	–	-	–	HLSF-SB-031(9/27/2006)	17.1	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.5.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrylonitrile	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Benzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromodichloromethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromomethane	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
2-Butanone	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
tert-Butyl alcohol	0	-	3	0	–	-	–	0.2	-	0.2	–	0.1	–
n-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
sec-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
tert-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon disulfide	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon tetrachloride	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-11	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorobromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorodibromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Chloroform	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloromethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorotoluene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Chlorotoluene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Cymene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dibromoethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Dibromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dichlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,4-Dichlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,4-Dichlorobutene	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
1,1-Dichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloroethylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,2-Dichloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,2-Dichloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.5.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Dichloromethane	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2,2-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,3-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,3-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Ethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Iodomethane	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Isopropyl alcohol	0	-	3	0	–	-	–	0.2	-	0.2	–	0.1	–
Isopropylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
m-Dichlorobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Methyl n-butyl ketone	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Methyl-2-pentanone (MIBK)	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Methyl tert-Butyl Ether (MTBE)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
n-Propylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Styrene (monomer)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Tetrachloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,1,2-Tetrachloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2,2-Tetrachloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,1-Trichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2-Trichloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2,3-Trichlorobenzene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2,4-Trichlorobenzene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,4-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3,5-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Trichloroethylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
m,p-Xylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
o-Xylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Semi Volatile Organic Compounds													
Benzyl alcohol	0	-	3	0	–	-	–	0.25	-	0.25	–	0.125	–
2-Butoxy ethanol	0	-	3	0	–	-	–	0.25	-	0.25	–	0.125	–
1,4-Dioxane	0	-	3	0	–	-	–	0.5	-	0.5	–	0.25	–
Hexachloro-1,3-butadiene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Tribromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.5.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Polycyclic Aromatic Hydrocarbons													
Naphthalene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	-	3	0	–	-	–	50	-	50	–	25	–
Gasoline Range Organics (GRO)	0	-	3	0	–	-	–	1	-	1	–	0.5	–
Inorganics													
Arsenic	0	-	3	0	–	-	–	2	-	2	–	1	–
Barium	3	-	3	100	26.3	-	27.6	–	-	–	HLSF-SB-029(9/27/2006)	27	–
Cadmium	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
Chromium	3	-	3	100	2.97	-	3.18	–	-	–	HLSF-SB-031(9/27/2006)	3.09	–
Chromium (Hexavalent)	0	-	3	0	–	-	–	0.4	-	0.4	–	0.2	–
Lead	1	-	3	33.3	3.3	-	3.3	1	-	1	HLSF-SB-030(9/27/2006)	1.43	–
Mercury	0	-	3	0	–	-	–	0.04	-	0.04	–	0.02	–
Phosphorus	3	-	3	100	55.4	-	80.1	–	-	–	HLSF-SB-030(9/27/2006)	71.5	–
Potassium	3	-	3	100	67.7	-	368	–	-	–	HLSF-SB-031(9/27/2006)	262	–
Selenium	0	-	3	0	–	-	–	1	-	1	–	0.5	–
Silver	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Sodium	1	-	3	33.3	262	-	262	50	-	50	HLSF-SB-031(9/27/2006)	104	–
Zinc	3	-	3	100	3.75	-	43	–	-	–	HLSF-SB-031(9/27/2006)	17.1	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.5.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	0	-	18	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
Acrylonitrile	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Benzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromobenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromodichloromethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromomethane	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
2-Butanone	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
tert-Butyl alcohol	0	-	18	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
n-Butylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
sec-Butylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
tert-Butylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon disulfide	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon tetrachloride	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
CFC-11	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
CFC-12	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorobenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorobromomethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorodibromomethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Chloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chloroethyl vinyl ether	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Chloroform	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chloromethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chlorotoluene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
4-Chlorotoluene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Cymene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	N
1,2-Dibromoethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibromomethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,2-Dichlorobenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,4-Dichlorobenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
trans-1,4-Dichlorobutene	0	-	18	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
1,1-Dichloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,2-Dichloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethylene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
cis-1,2-Dichloroethene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
trans-1,2-Dichloroethene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y

Table E.5.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Dichloromethane	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2-Dichloropropane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,3-Dichloropropane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2,2-Dichloropropane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloropropene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
cis-1,3-Dichloropropene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
trans-1,3-Dichloropropene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Ethylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Iodomethane	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Isopropyl alcohol	0	-	18	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Isopropylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m-Dichlorobenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Methyl n-butyl ketone	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methyl tert-Butyl Ether (MTBE)	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
n-Propylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Styrene (monomer)	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Tetrachloroethene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,1,2-Tetrachloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,2,2-Tetrachloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,1-Trichloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,2-Trichloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,2,3-Trichlorobenzene	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,3-Trichloropropane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,2,4-Trichlorobenzene	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,4-Trimethylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,3,5-Trimethylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Trichloroethylene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Vinyl chloride	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m,p-Xylene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
o-Xylene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Semi Volatile Organic Compounds														
Benzyl alcohol	0	-	18	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Butoxy ethanol	0	-	18	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1,4-Dioxane	0	-	18	0	–	-	–	0.5	-	0.5	–	0.25	–	N
Hexachloro-1,3-butadiene	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Tribromomethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	N

Table E.5.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Polycyclic Aromatic Hydrocarbons														
Naphthalene	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	18	0	–	-	–	50	-	50	–	25	–	N
Gasoline Range Organics (GRO)	0	-	18	0	–	-	–	1	-	1	–	0.5	–	N
Inorganics														
Arsenic	6	-	18	33.3	2.24	-	8.94	1	-	2	HLSF-SB-031(10/12/2006)	2.2	3.871	N
Barium	18	-	18	100	26.3	-	152	–	-	–	HLSF-SB-029(10/10/2006)	76.7	93.32	N
Cadmium	6	-	18	33.3	1.06	-	2.38	0.1	-	0.1	HLSF-SB-030(10/11/2006)	0.59	1.442	N
Chromium	18	-	18	100	2.97	-	26.4	–	-	–	HLSF-SB-031(10/12/2006)	11.1	13.8	N
Chromium (Hexavalent)	0	-	18	0	–	-	–	0.4	-	5	–	2.12	–	N
Lead	16	-	18	88.9	3.3	-	39.9	1	-	1	HLSF-SB-030(10/11/2006)	16.4	20.97	N
Mercury	0	-	18	0	–	-	–	0.04	-	0.04	–	0.02	–	N
Phosphorus	18	-	18	100	55.4	-	390	–	-	–	HLSF-SB-030(10/11/2006)	211	320.5	N
Potassium	18	-	18	100	67.7	-	4090	–	-	–	HLSF-SB-031(10/12/2006)	2340	2861	N
Selenium	0	-	18	0	–	-	–	1	-	1	–	0.5	–	N
Silver	0	-	18	0	–	-	–	0.05	-	0.2	–	0.0417	–	N
Sodium	16	-	18	88.9	262	-	5180	50	-	50	HLSF-SB-029(10/10/2006)	2440	3165	N
Zinc	18	-	18	100	3.75	-	102	–	-	–	HLSF-SB-030(10/11/2006)	37.4	47.21	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.5-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Volatile Organic Compounds																			
Acetone	0	/	3	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrylonitrile	0	/	3	0	–	0.01	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0	/	3	0	–	0.01	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bromobenzene	0	/	3	0	–	0.01	–	3.00E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bromodichloromethane	0	/	3	0	–	0.01	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0	/	3	0	–	0.05	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0	/	3	0	–	0.05	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
tert-Butyl alcohol	0	/	3	0	–	0.2	–	2.35E+04	n	3.41E+05	n	–	–	–	–	–	–	no	no
n-Butylbenzene	0	/	3	0	–	0.01	–	4.45E+03	n	3.38E+04	n	–	–	–	–	–	–	no	no
sec-Butylbenzene	0	/	3	0	–	0.01	–	2.55E+03	n	1.53E+04	n	–	–	–	–	–	–	no	no
tert-Butylbenzene	0	/	3	0	–	0.01	–	2.52E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Carbon disulfide	0	/	3	0	–	0.01	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0	/	3	0	–	0.01	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0	/	3	0	–	0.01	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0	/	3	0	–	0.01	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0	/	3	0	–	0.01	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorobromomethane	0	/	3	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0	/	3	0	–	0.01	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0	/	3	0	–	0.01	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0	/	3	0	–	0.05	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0	/	3	0	–	0.01	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0	/	3	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorotoluene	0	/	3	0	–	0.01	–	1.56E+03	n	2.27E+04	n	–	–	–	–	–	–	no	no
4-Chlorotoluene	0	/	3	0	–	0.01	–	5.50E+03	n	7.20E+04	n	–	–	–	–	–	–	no	no
Cymene	0	/	3	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
1,2-Dibromo-3-chloropropane (dbcp)	0	/	3	0	–	0.05	–	5.40E-02	c	6.90E-01	c	–	–	–	–	–	–	no	no
1,2-Dibromoethane	0	/	3	0	–	0.01	–	5.74E-01	c	3.14E+00	c	–	–	–	–	–	–	no	no
Dibromomethane	0	/	3	0	–	0.01	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0	/	3	0	–	0.01	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0	/	3	0	–	0.01	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
trans-1,4-Dichlorobutene	0	/	3	0	–	0.1 ^	–	6.90E-02	c	3.50E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0	/	3	0	–	0.01	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0	/	3	0	–	0.01	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0	/	3	0	–	0.01	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0	/	3	0	–	0.01	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0	/	3	0	–	0.01	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0	/	3	0	–	0.05	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0	/	3	0	–	0.01	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
1,3-Dichloropropane	0	/	3	0	–	0.01	–	1.60E+03	n	2.00E+04	n	–	–	–	–	–	–	no	no
2,2-Dichloropropane	0	/	3	0	–	0.01	–	8.35E+00	n	3.90E+01	n	–	–	–	–	–	–	no	no
1,1-Dichloropropene	0	/	3	0	–	0.01	–	6.40E+01	c	3.18E+02	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0	/	3	0	–	0.01	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0	/	3	0	–	0.01	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethylbenzene	0	/	3	0	–	0.01	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0	/	3	0	–	0.05	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
Isopropyl alcohol	0	/	3	0	–	0.2	–	9.90E+09	n	4.20E+10	n	–	–	–	–	–	–	no	no
Isopropylbenzene	0	/	3	0	–	0.01	–	3.21E+03	n	1.49E+04	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0	/	3	0	–	0.01	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0	/	3	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0	/	3	0	–	0.01	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone(mibk)	0	/	3	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Methyl tert-Butyl Ether (MTBE)	0	/	3	0	–	0.01	–	8.62E+02	c	4.69E+03	c	–	–	–	–	–	–	no	no
n-Propylbenzene	0	/	3	0	–	0.01	–	3.40E+03	n	2.10E+04	n	–	–	–	–	–	–	no	no
Styrene (monomer)	0	/	3	0	–	0.01	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0	/	3	0	–	0.01	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,1,2-Tetrachloroethane	0	/	3	0	–	0.01	–	2.92E+01	c	1.61E+02	c	–	–	–	–	–	–	no	no

Table E.5-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
1,1,2,2-Tetrachloroethane	0	/	3	0	–		0.01	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0	/	3	0	–		0.01	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0	/	3	0	–		0.01	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichlorobenzene	0	/	3	0	–		0.05	–	4.90E+01	n	4.90E+02	n	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0	/	3	0	–		0.01	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0	/	3	0	–		0.05	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
1,2,4-Trimethylbenzene	0	/	3	0	–		0.01	–	6.20E+01	n	2.60E+02	n	–	–	–	–	–	–	no	no
1,3,5-Trimethylbenzene	0	/	3	0	–		0.01	–	7.80E+02	n	1.00E+04	n	–	–	–	–	–	–	no	no
Trichloroethylene	0	/	3	0	–		0.01	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl chloride	0	/	3	0	–		0.01	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
m,p-Xylene	0	/	3	0	–		0.01	–	8.29E+03	n	2.72E+04	n	–	–	–	–	–	–	no	no
o-Xylene	0	/	3	0	–		0.01	–	9.55E+03	n	3.15E+04	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																				
Benzyl alcohol	0	/	3	0	–		0.25	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
2-Butoxy ethanol	0	/	3	0	–		0.25	–	3.10E+04	n	3.10E+05	n	–	–	–	–	–	–	no	no
1,4-Dioxane	0	/	3	0	–		0.5	–	4.42E+02	c	1.74E+03	c	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0	/	3	0	–		0.05	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Tribromomethane	0	/	3	0	–		0.01	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																				
Naphthalene	0	/	3	0	–		0.05	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH																				
Diesel Range Organics (DRO)	0	/	3	0	–		50	–	5.20E+02	n	1.12E+03	n	–	–	–	–	–	–	no	no
Gasoline Range Organics (GRO)	0	/	3	0	–		1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Inorganics																				
Arsenic	0	/	3	0	–		2	no	3.90E+00	c	1.77E+01	c	–	–	–	–	–	–	no	no
Barium	3	/	3	100	27.6		–	YES	1.56E+04	n	2.24E+05	n	no	no	–	1.77E-03	–	1.23E-04	no	no
Cadmium	0	/	3	0	–		0.1	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Chromium	3	/	3	100	3.18		–	YES	2.19E+02	n	2.92E+03	n	no	no	–	1.45E-02	–	1.09E-03	no	no
Chromium (Hexavalent)	0	/	3	0	–		0.4	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	1	/	3	33.3	3.3		1	YES	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	0	/	3	0	–		0.04	no	7.71E+00	n	4.99E+01	n	–	–	–	–	–	–	no	no
Phosphorus	3	/	3	100	80.1	!	–	no	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Potassium	3	/	3	100	368	!	–	YES	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Selenium	0	/	3	0	–		1	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	0	/	3	0	–		0.05	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Sodium	1	/	3	33.3	262	!	50	YES	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Zinc	3	/	3	100	43		–	no	2.35E+04	n	3.41E+05	n	no	no	–	1.83E-03	–	1.26E-04	no	no
Total Maximum / Screening Level Ratios															NA	0.02	NA	0.001		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)															NA	0.02	NA	0.001		

Target Organ Max/SL Ratios		
Kidney & Liver	0.002	0.0001
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	NA	NA
Lungs	0.01	0.001
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	0.002	0.0001
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.002	0.0001
Immune System	NA	NA

Table E.5-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
									Development		NA		NA		
									Reproduction		NA		NA		
									Bone		NA		NA		
									Not Available/ Not Reported		NA		NA		

Notes:

– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.5-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds												
Acetone	0	/ 3	0	–	0.1	–	2.63E+05	n	–	–	–	no
Acrylonitrile	0	/ 3	0	–	0.01	–	2.90E+02	n	–	–	–	no
Benzene	0	/ 3	0	–	0.01	–	4.71E+02	n	–	–	–	no
Bromobenzene	0	/ 3	0	–	0.01	–	1.40E+03	n	–	–	–	no
Bromodichloromethane	0	/ 3	0	–	0.01	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/ 3	0	–	0.05	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/ 3	0	–	0.05	–	1.48E+05	n	–	–	–	no
tert-Butyl alcohol	0	/ 3	0	–	0.2	–	9.29E+04	n	–	–	–	no
n-Butylbenzene	0	/ 3	0	–	0.01	–	1.80E+04	n	–	–	–	no
sec-Butylbenzene	0	/ 3	0	–	0.01	–	1.05E+04	n	–	–	–	no
tert-Butylbenzene	0	/ 3	0	–	0.01	–	1.04E+04	n	–	–	–	no
Carbon disulfide	0	/ 3	0	–	0.01	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/ 3	0	–	0.01	–	1.99E+02	n	–	–	–	no
CFC-11	0	/ 3	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/ 3	0	–	0.01	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/ 3	0	–	0.01	–	1.58E+03	n	–	–	–	no
Chlorobromomethane	0	/ 3	0	–	0.01	–	NA	n	–	–	–	no
Chlorodibromomethane	0	/ 3	0	–	0.01	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/ 3	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/ 3	0	–	0.05	–	NA	n	–	–	–	no
Chloroform	0	/ 3	0	–	0.01	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/ 3	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorotoluene	0	/ 3	0	–	0.01	–	6.19E+03	n	–	–	–	no
4-Chlorotoluene	0	/ 3	0	–	0.01	–	2.17E+04	n	–	–	–	no
Cymene	0	/ 3	0	–	0.01	–	NA	n	–	–	–	no
1,2-Dibromo-3-chloropropane (dbcp)	0	/ 3	0	–	0.05	–	5.99E+01	n	–	–	–	no
1,2-Dibromoethane	0	/ 3	0	–	0.01	–	4.86E+01	c	–	–	–	no
Dibromomethane	0	/ 3	0	–	0.01	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/ 3	0	–	0.01	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/ 3	0	–	0.01	–	3.78E+03	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/ 3	0	–	0.1	–	9.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/ 3	0	–	0.01	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/ 3	0	–	0.01	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/ 3	0	–	0.01	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/ 3	0	–	0.01	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/ 3	0	–	0.01	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/ 3	0	–	0.05	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/ 3	0	–	0.01	–	1.17E+02	n	–	–	–	no
1,3-Dichloropropane	0	/ 3	0	–	0.01	–	6.19E+03	n	–	–	–	no
2,2-Dichloropropane	0	/ 3	0	–	0.01	–	3.51E+01	n	–	–	–	no
1,1-Dichloropropene	0	/ 3	0	–	0.01	–	2.17E+03	c	–	–	–	no
cis-1,3-Dichloropropene	0	/ 3	0	–	0.01	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/ 3	0	–	0.01	–	5.10E+02	n	–	–	–	no
Ethylbenzene	0	/ 3	0	–	0.01	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/ 3	0	–	0.05	–	5.41E+01	n	–	–	–	no
Isopropyl alcohol	0	/ 3	0	–	0.2	–	NA	n	–	–	–	no
Isopropylbenzene	0	/ 3	0	–	0.01	–	1.03E+04	n	–	–	–	no
m-Dichlorobenzene	0	/ 3	0	–	0.01	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/ 3	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/ 3	0	–	0.01	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone(mibk)	0	/ 3	0	–	0.05	–	2.31E+04	n	–	–	–	no

Table E.5-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Methyl tert-Butyl Ether (MTBE)	0	/	3	0	–		0.01	–	6.55E+04	c	–	–	–	no
n-Propylbenzene	0	/	3	0	–		0.01	–	1.64E+04	n	–	–	–	no
Styrene (monomer)	0	/	3	0	–		0.01	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	3	0	–		0.01	–	3.38E+02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	3	0	–		0.01	–	2.78E+03	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	3	0	–		0.01	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	3	0	–		0.01	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	3	0	–		0.01	–	1.24E+03	n	–	–	–	no
1,2,3-Trichlorobenzene	0	/	3	0	–		0.05	–	2.48E+02	n	–	–	–	no
1,2,3-Trichloropropane	0	/	3	0	–		0.01	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	3	0	–		0.05	–	4.27E+02	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	3	0	–		0.01	–	4.65E+02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	3	0	–		0.01	–	3.10E+03	n	–	–	–	no
Trichloroethylene	0	/	3	0	–		0.01	–	4.60E+03	c	–	–	–	no
Vinyl chloride	0	/	3	0	–		0.01	–	2.48E+02	c	–	–	–	no
m,p-Xylene	0	/	3	0	–		0.01	–	2.38E+04	n	–	–	–	no
o-Xylene	0	/	3	0	–		0.01	–	2.75E+04	n	–	–	–	no
Semi Volatile Organic Compounds														
Benzyl alcohol	0	/	3	0	–		0.25	–	2.38E+04	n	–	–	–	no
2-Butoxy ethanol	0	/	3	0	–		0.25	–	2.38E+04	n	–	–	–	no
1,4-Dioxane	0	/	3	0	–		0.5	–	1.97E+04	c	–	–	–	no
Hexachloro-1,3-butadiene	0	/	3	0	–		0.05	–	2.38E+02	n	–	–	–	no
Tribromomethane	0	/	3	0	–		0.01	–	4.76E+03	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons														
Naphthalene	0	/	3	0	–		0.05	–	7.02E+02	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	/	3	0	–		50	–	NA	n	–	–	–	no
Gasoline Range Organics (GRO)	0	/	3	0	–		1	–	NA	n	–	–	–	no
Inorganics														
Arsenic	0	/	3	0	–		2	no	6.54E+01	n	–	–	–	no
Barium	3	/	3	100	27.6		–	YES	4.35E+03	n	no	–	6.34E-03	no
Cadmium	0	/	3	0	–		0.1	no	3.09E+02	n	–	–	–	no
Chromium	3	/	3	100	3.18		–	YES	4.49E+02	n	no	–	7.08E-03	no
Chromium (Hexavalent)	0	/	3	0	–		0.4	no	4.49E+02	n	–	–	–	no
Lead	1	/	3	33.3	3.3		1	YES	8.00E+02	IEUBK	no	–	–	no
Mercury	0	/	3	0	–		0.04	no	6.36E+01	n	–	–	–	no
Phosphorus	3	/	3	100	80.1	!	–	no	NA	n	NA	–	–	no
Potassium	3	/	3	100	368	!	–	YES	NA	n	NA	–	–	no
Selenium	0	/	3	0	–		1	no	1.55E+03	n	–	–	–	no
Silver	0	/	3	0	–		0.05	no	1.55E+03	n	–	–	–	no
Sodium	1	/	3	33.3	262	!	50	YES	NA	n	NA	–	–	no
Zinc	3	/	3	100	43		–	no	9.29E+04	n	no	–	4.63E-04	no

Total Maximum / Screening Level Ratios	NA	0.01
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	NA	0.01

Target Organ Max/SL Ratios	
Kidney & Liver	0.006
Brain	NA
Nasal	NA
Eyes	NA
Skin	NA

Table E.5-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
							Lungs		0.007	
							Gastrointestinal Tract and Forestomach		NA	
							Whole Body		NA	
							Blood		0.0005	
							Nervous System		NA	
							Dental		NA	
							Red Blood Cells		NA	
							Glands		NA	
							Fetus		0.006	
							Immune System		NA	
							Development		NA	
							Reproduction		NA	
							Bone		NA	
							Not Available/ Not Reported		NA	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.5-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	0	/	18	0	–	no
Acrylonitrile	0	/	18	0	–	no
Benzene	0	/	18	0	–	no
Bromobenzene	0	/	18	0	–	no
Bromodichloromethane	0	/	18	0	–	no
Bromomethane	0	/	18	0	–	no
2-Butanone	0	/	18	0	–	no
tert-Butyl alcohol	0	/	18	0	–	no
n-Butylbenzene	0	/	18	0	–	no
sec-Butylbenzene	0	/	18	0	–	no
tert-Butylbenzene	0	/	18	0	–	no
Carbon disulfide	0	/	18	0	–	no
Carbon tetrachloride	0	/	18	0	–	no
CFC-11	0	/	18	0	–	no
CFC-12	0	/	18	0	–	no
Chlorobenzene	0	/	18	0	–	no
Chlorobromomethane	0	/	18	0	–	no
Chloroethane	0	/	18	0	–	no
2-Chloroethyl vinyl ether	0	/	18	0	–	no
Chloroform	0	/	18	0	–	no
Chloromethane	0	/	18	0	–	no
2-Chlorotoluene	0	/	18	0	–	no
4-Chlorotoluene	0	/	18	0	–	no
Cymene	0	/	18	0	–	no
1,2-Dibromoethane	0	/	18	0	–	no
Dibromomethane	0	/	18	0	–	no
1,2-Dichlorobenzene	0	/	18	0	–	no
1,4-Dichlorobenzene	0	/	18	0	–	no
trans-1,4-Dichlorobutene	0	/	18	0	–	no
1,1-Dichloroethane	0	/	18	0	–	no
1,2-Dichloroethane	0	/	18	0	–	no
1,1-Dichloroethylene	0	/	18	0	–	no
cis-1,2-Dichloroethene	0	/	18	0	–	no
trans-1,2-Dichloroethene	0	/	18	0	–	no
Dichloromethane	0	/	18	0	–	no
1,2-Dichloropropane	0	/	18	0	–	no
1,3-Dichloropropane	0	/	18	0	–	no
2,2-Dichloropropane	0	/	18	0	–	no
1,1-Dichloropropene	0	/	18	0	–	no
cis-1,3-Dichloropropene	0	/	18	0	–	no
trans-1,3-Dichloropropene	0	/	18	0	–	no
Ethylbenzene	0	/	18	0	–	no
Iodomethane	0	/	18	0	–	no
Isopropylbenzene	0	/	18	0	–	no
m-Dichlorobenzene	0	/	18	0	–	no
Methyl n-butyl ketone	0	/	18	0	–	no
Methylbenzene	0	/	18	0	–	no
4-Methyl-2-pentanone(mibk)	0	/	18	0	–	no
Methyl tert-Butyl Ether (MTBE)	0	/	18	0	–	no
n-Propylbenzene	0	/	18	0	–	no
Styrene (monomer)	0	/	18	0	–	no
Tetrachloroethene	0	/	18	0	–	no
1,1,1,2-Tetrachloroethane	0	/	18	0	–	no
1,1,2,2-Tetrachloroethane	0	/	18	0	–	no
1,1,1-Trichloroethane	0	/	18	0	–	no
1,1,2-Trichloroethane	0	/	18	0	–	no
1,2,3-Trichlorobenzene	0	/	18	0	–	no
1,2,3-Trichloropropane	0	/	18	0	–	no
1,2,4-Trichlorobenzene	0	/	18	0	–	no
1,2,4-Trimethylbenzene	0	/	18	0	–	no
1,3,5-Trimethylbenzene	0	/	18	0	–	no

Table E.5-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 31-32 (SWMU 31-32)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Trichloroethylene	0	/	18	0	–	no
Vinyl chloride	0	/	18	0	–	no
m,p-Xylene	0	/	18	0	–	no
o-Xylene	0	/	18	0	–	no
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0	/	18	0	–	no

Notes:
– = Not applicable.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] All detected volatile constituents were selected as COPCs for the vapor inhaltion pathway.

Table E.5.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	0	/	3	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrylonitrile	0	/	3	0	–	0.01		no	1,000	*R4*	NA	no	ND
Benzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
Bromobenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Bromodichloromethane	0	/	3	0	–	0.01		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	3	0	–	0.05		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	3	0	–	0.05		no	89.6	*R5*	NA	no	ND
tert-Butyl alcohol	0	/	3	0	–	0.2		no	NA		NA	no	ND
n-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
sec-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
tert-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Carbon disulfide	0	/	3	0	–	0.01		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	3	0	–	0.01		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	3	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	3	0	–	0.01		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
Chlorobromomethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
Chlorodibromomethane	0	/	3	0	–	0.01		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	3	0	–	0.05		no	NA		NA	no	ND
Chloroform	0	/	3	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	3	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
4-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Cymene	0	/	3	0	–	0.01		no	NA		NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP	0	/	3	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	3	0	–	0.01		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	3	0	–	0.01		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	3	0	–	0.01		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	3	0	–	0.01		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	3	0	–	0.01		no	0.546	*R5*	NA	no	ND
trans-1,4-Dichlorobutene	0	/	3	0	–	0.1		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	3	0	–	0.01		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	3	0	–	0.01		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	3	0	–	0.01		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	3	0	–	0.01		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	3	0	–	0.01		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	3	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND
1,1-Dichloropropene	0	/	3	0	–	0.01		no	NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	3	0	–	0.01		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	3	0	–	0.01		no	0.398	*R5*	NA	no	ND
Ethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	3	0	–	0.05		no	1.23	*R5*	NA	no	ND
Isopropyl alcohol	0	/	3	0	–	0.2		no	NA		NA	no	ND
Isopropylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Methyl n-butyl ketone	0	/	3	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	3	0	–	0.05		no	443	*R5*	NA	no	ND

Table E.5.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Methyl tert-Butyl Ether (MTBE)	0	/	3	0	–	0.01		no	NA		NA	no	ND
n-Propylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Styrene (monomer)	0	/	3	0	–	0.01		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	3	0	–	0.01		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	3	0	–	0.01		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	3	0	–	0.01		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	3	0	–	0.01		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	3	0	–	0.01		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	3	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	3	0	–	0.01		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	3	0	–	0.05		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Trichloroethylene	0	/	3	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Vinyl chloride	0	/	3	0	–	0.01		no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Semi Volatile Organic Compounds													
Benzyl alcohol	0	/	3	0	–	0.25		no	65.8	*R5*	NA	no	ND
2-Butoxy ethanol	0	/	3	0	–	0.25		no	NA		NA	no	ND
1,4-Dioxane	0	/	3	0	–	0.5		no	2.05	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	3	0	–	0.05	^	no	0.0398	*R5*	NA	no	ND
Tribromomethane	0	/	3	0	–	0.01		no	15.9	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Naphthalene	0	/	3	0	–	0.05		no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TP													
Diesel Range Organics (DRO)	0	/	3	0	–	50		no	10,000	*API*	NA	no	ND
Gasoline Range Organics (GRO)	0	/	3	0	–	1		no	10,000	*API*	NA	no	ND
Inorganics													
Arsenic	0	/	3	0	–	2		no	18	*EcoSSL*	NA	no	ND
Barium	3	/	3	100	27.6	–		YES	330	*EcoSSL*	0.08	no	≤ BKGD
Cadmium	0	/	3	0	–	0.1		no	0.36	*EcoSSL*	NA	no	ND
Chromium	3	/	3	100	3.18	–		YES	26	*EcoSSL*	0.1	no	≤ BKGD
Chromium (Hexavalent)	0	/	3	0	–	0.4		no	130	*EcoSSL*	NA	no	ND
Lead	1	/	3	33.3	3.3	1		YES	11	*EcoSSL*	0.3	no	≤ BKGD
Mercury	0	/	3	0	–	0.04		no	0.1	*R4*	NA	no	ND
Selenium	0	/	3	0	–	1	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	3	0	–	0.05		no	4.2	*EcoSSL*	NA	no	ND
Zinc	3	/	3	100	43	–		no	46	*EcoSSL*	0.9	no	HQ ≤ 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screenin level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.5.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	0	/	3	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrylonitrile	0	/	3	0	–	0.01		no	1,000	*R4*	NA	no	ND
Benzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
Bromobenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Bromodichloromethane	0	/	3	0	–	0.01		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	3	0	–	0.05		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	3	0	–	0.05		no	89.6	*R5*	NA	no	ND
tert-Butyl alcohol	0	/	3	0	–	0.2		no	NA		NA	no	ND
n-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
sec-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
tert-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Carbon disulfide	0	/	3	0	–	0.01		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	3	0	–	0.01		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	3	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	3	0	–	0.01		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
Chlorobromomethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
Chlorodibromomethane	0	/	3	0	–	0.01		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	3	0	–	0.05		no	NA		NA	no	ND
Chloroform	0	/	3	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	3	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
4-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Cymene	0	/	3	0	–	0.01		no	NA		NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP)	0	/	3	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	3	0	–	0.01		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	3	0	–	0.01		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	3	0	–	0.01		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	3	0	–	0.01		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	3	0	–	0.01		no	0.546	*R5*	NA	no	ND
trans-1,4-Dichlorobutene	0	/	3	0	–	0.1		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	3	0	–	0.01		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	3	0	–	0.01		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	3	0	–	0.01		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	3	0	–	0.01		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	3	0	–	0.01		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	3	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND
1,1-Dichloropropene	0	/	3	0	–	0.01		no	NA		NA	no	ND

Table E.5.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
cis-1,3-Dichloropropene	0	/	3	0	–	0.01		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	3	0	–	0.01		no	0.398	*R5*	NA	no	ND
Ethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	3	0	–	0.05		no	1.23	*R5*	NA	no	ND
Isopropyl alcohol	0	/	3	0	–	0.2		no	NA		NA	no	ND
Isopropylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Methyl n-butyl ketone	0	/	3	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	3	0	–	0.01		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	3	0	–	0.05		no	443	*R5*	NA	no	ND
Methyl tert-Butyl Ether (MTBE)	0	/	3	0	–	0.01		no	NA		NA	no	ND
n-Propylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Styrene (monomer)	0	/	3	0	–	0.01		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	3	0	–	0.01		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	3	0	–	0.01		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	3	0	–	0.01		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	3	0	–	0.01		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	3	0	–	0.01		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	3	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	3	0	–	0.01		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	3	0	–	0.05		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Trichloroethylene	0	/	3	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Vinyl chloride	0	/	3	0	–	0.01		no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Semi Volatile Organic Compounds													
Benzyl alcohol	0	/	3	0	–	0.25		no	65.8	*R5*	NA	no	ND
2-Butoxy ethanol	0	/	3	0	–	0.25		no	NA		NA	no	ND
1,4-Dioxane	0	/	3	0	–	0.5		no	2.05	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	3	0	–	0.05	^	no	0.0398	*R5*	NA	no	ND
Tribromomethane	0	/	3	0	–	0.01		no	15.9	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Naphthalene	0	/	3	0	–	0.05		no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	/	3	0	–	50		no	10,000	*API*	NA	no	ND
Gasoline Range Organics (GRO)	0	/	3	0	–	1		no	10,000	*API*	NA	no	ND
Inorganics													
Arsenic	0	/	3	0	–	2		no	18	*EcoSSL*	NA	no	ND
Barium	3	/	3	100	27.6	–		YES	330	*EcoSSL*	0.08	no	≤ BKGD
Cadmium	0	/	3	0	–	0.1		no	0.36	*EcoSSL*	NA	no	ND
Chromium	3	/	3	100	3.18	–		YES	26	*EcoSSL*	0.1	no	≤ BKGD
Chromium (Hexavalent)	0	/	3	0	–	0.4		no	130	*EcoSSL*	NA	no	ND

Table E.5.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Lead	1	/	3	33.3	3.3	1		YES	11	*EcoSSL*	0.3	no	≤ BKGD
Mercury	0	/	3	0	–	0.04		no	0.1	*R4*	NA	no	ND
Selenium	0	/	3	0	–	1	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	3	0	–	0.05		no	4.2	*EcoSSL*	NA	no	ND
Zinc	3	/	3	100	43	–		no	46	*EcoSSL*	0.9	no	HQ ≤ 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.6.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Inorganics									
Fluoride	12 - 12	100	0.36	0.98	–	–	3334B1(4/7/1992)	0.559	0.649

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.6.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Inorganics									
Fluoride	12 - 12	100	0.36	0.98	–	–	3334B1(4/7/1992)	0.559	0.649

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.6.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]			Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples		FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Inorganics													
Fluoride	12	-	12	100	0.36	-	0.98	–	-	–	3334B1(4/7/1992)	0.559	0.649	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.6-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 33-34 (SWMU 33-34)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Inorganics																			
Fluoride	12	/	12	100	0.98	–	no	4.69E+03	n	6.81E+04	n	no	no	–	2.09E-04	–	1.44E-05	no	no
Total Maximum / Screening Level Ratios														NA	0.0002	NA	0.00001		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)														NA	0.0002	NA	0.00001		
Target Organ Max/SL Ratios																			
Kidney & Liver															NA		NA		
Brain															NA		NA		
Nasal															NA		NA		
Eyes															NA		NA		
Skin															NA		NA		
Lungs															NA		NA		
Gastrointestinal Tract and Forestomach															NA		NA		
Whole Body															NA		NA		
Blood															NA		NA		
Nervous System															NA		NA		
Dental															0.0002		0.00001		
Red Blood Cells															NA		NA		
Glands															NA		NA		
Fetus															NA		NA		
Immune System															NA		NA		
Development															NA		NA		
Reproduction															NA		NA		
Bone															NA		NA		
Not Available/ Not Reported															NA		NA		

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.6-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 33-34 (SWMU 33-34)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Inorganics											
Fluoride	12 / 12	100	0.98	–	no	1.86E+04	n	no	–	5.27E-05	no
Total Maximum / Screening Level Ratios									NA	0.00005	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)									NA	0.00005	
								Target Organ Max/SL Ratios			
								Kidney & Liver		NA	
								Brain		NA	
								Nasal		NA	
								Eyes		NA	
								Skin		NA	
								Lungs		NA	
								Gastrointestinal Tract and Forestomach		NA	
								Whole Body		NA	
								Blood		NA	
								Nervous System		NA	
								Dental		0.00005	
								Red Blood Cells		NA	
								Glands		NA	
								Fetus		NA	
								Immune System		NA	
								Development		NA	
								Reproduction		NA	
								Bone		NA	
								Not Available/ Not Reported		NA	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.6.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)	Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Inorganics										
Fluoride	12 / 12	100	0.98	–	no	30	*ORNL*	0.03	no	HQ ≤ 1

Notes:
mg/kg = Milligrams per kilogram.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.6.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)	Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Inorganics												
Fluoride	12	/	12	100	0.98	–	no	30	*ORNL*	0.03	no	HQ ≤ 1

Notes:
mg/kg = Milligrams per kilogram.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.7.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds															
Acetone	0	-	6	0	–	-	–		0.1	-	0.1		–	0.05	–
Acrolein	0	-	6	0	–	-	–		0.2	-	0.2		–	0.1	–
Acrylonitrile	0	-	6	0	–	-	–		0.1	-	0.1		–	0.05	–
Benzene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Bis(2-chloroethyl)ether	0	-	6	0	–	-	–		0.33	-	0.33		–	0.165	–
Bis(2-chloroisopropyl)ether	0	-	6	0	–	-	–		0.33	-	0.33		–	0.165	–
Bromomethane	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
2-Butanone	0	-	6	0	–	-	–		0.1	-	0.1		–	0.05	–
Carbon disulfide	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Carbon tetrachloride	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
CFC-11	0	-	6	0	–	-	–		0.01	-	0.01		–	0.005	–
CFC-12	0	-	6	0	–	-	–		0.02	-	0.02		–	0.01	–
Chlorobenzene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Chlorodibromomethane	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Chloroethane	0	-	6	0	–	-	–		0.01	-	0.01		–	0.005	–
2-Chloroethyl vinyl ether	0	-	6	0	–	-	–		0.01	-	0.01		–	0.005	–
Chloroform	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Chloromethane	0	-	6	0	–	-	–		0.01	-	0.01		–	0.005	–
2-Chlorophenol	0	-	6	0	–	-	–		0.33	-	0.33		–	0.165	–
Dibromomethane	0	-	6	0	–	-	–		0.02	-	0.02		–	0.01	–
1,2-Dichlorobenzene	0	-	6	0	–	-	–		0.33	-	0.33		–	0.165	–
1,4-Dichlorobenzene	0	-	6	0	–	-	–		0.33	-	0.33		–	0.165	–
1,4 Dichloro-2-butene	0	-	6	0	–	-	–		0.02	-	0.02		–	0.01	–
1,1-Dichloroethane	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,2-Dichloroethane	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,1-Dichloroethylene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
trans-1,2-Dichloroethene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Dichloromethane	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,2-Dichloropropane	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
cis-1,3-Dichloropropene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
trans-1,3-Dichloropropene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Ethanol	0	-	6	0	–	-	–		1	-	1		–	0.5	–
Ethyl methacrylate	0	-	6	0	–	-	–		0.02	-	0.02		–	0.01	–
Ethylbenzene	0	-	6	0	–	-	–		0.005	-	0.005		–	0.0025	–
Iodomethane	0	-	6	0	–	-	–		0.02	-	0.02		–	0.01	–
m-Dichlorobenzene	0	-	6	0	–	-	–		0.33	-	0.33		–	0.165	–

Table E.7.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Styrene (monomer)	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Trichloroethylene	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	6	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	6	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzyl butyl phthalate	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Bis(2-chloroethoxy)methane	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Bis(2-ethylhexyl)phthalate	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
4-Bromophenyl phenyl ether	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
4-Chloro-3-methylphenol	0	-	6	0	–	-	–	0.66	-	0.66	–	0.33	–
4-Chlorophenyl phenyl ether	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
3,3'-Dichlorobenzidine	0	-	6	0	–	-	–	0.66	-	0.66	–	0.33	–
2,4-Dichlorophenol	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Diethyl phthalate	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
2,4-Dimethylphenol	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
2,4-Dinitrophenol	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–
2,4-Dinitrotoluene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Dimethyl phthalate	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Di-n-butyl phthalate	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Di-n-octyl phthalate	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Hexachloro-1,3-butadiene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Hexachlorobenzene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Hexachlorocyclopentadiene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Hexachloroethane	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Methanamine, n-methyl-n-nitroso	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.7.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–
2-Nitrophenol	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
4-Nitrophenol	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–
n-Nitrosodi-n-propylamine	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
n-Nitrosodiphenylamine	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Pentachlorophenol	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–
Phenol	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
2,4,6-Trichlorophenol	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Acenaphthylene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Benzo(a)anthracene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Benzo(a)pyrene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Benzo(b)fluoranthene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Benzo(g,h,i)perylene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Benzo(k)fluoranthene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
1,2-Benzphenanthracene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Chloronaphthalene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Dibenz(a,h)anthracene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Fluoranthene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Fluorene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Indeno(1,2,3-cd)pyrene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Naphthalene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Phenanthrene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Pyrene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Pesticides													
Aldrin	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
alpha-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
beta-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Camphechlor	0	-	6	0	–	-	–	0.067	-	0.067	–	0.0335	–
Chlordane	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
4,4-DDD	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDE	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDT	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
delta-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Dieldrin	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–

Table E.7.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Endosulfan I	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Endosulfan II	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan sulfate	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin aldehyde	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor epoxide	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1232	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1242	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1254	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1260	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1016	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1248	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Explosives													
2,6-Dinitrotoluene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
Inorganics													
Arsenic	0	-	6	0	–	-	–	20	-	55	–	23.3	–
Barium	1	-	6	16.7	81	-	81	87	-	110	39SSD3	57.4	–
Cadmium	0	-	6	0	–	-	–	0.98	-	2.7	–	1.16	–
Lead	1	-	6	16.7	20	-	20	22	-	27	39SSD3	14.1	–
Mercury	0	-	6	0	–	-	–	0.06	-	0.1	–	0.0433	–
Selenium	0	-	6	0	–	-	–	20	-	55	–	23.3	–
Silver	0	-	6	0	–	-	–	2	-	5.5	–	2.33	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.7.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetaldehyde	0	-	15	0	–	-	–	0.0178	-	0.0201	–	0.00941	–
Acetone	1	-	21	4.76	0.0342	-	0.0342	0.0231	-	0.1	SWMU 38-39 SB-03(12/1/1993)	0.0241	–
Acrolein	0	-	21	0	–	-	–	0.00577	-	0.2	–	0.0308	–
Acrylonitrile	0	-	21	0	–	-	–	0.0115	-	0.1	–	0.0186	–
Benzene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Bis(2-chloroethyl)ether	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Bis(2-chloroisopropyl)ether	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Bromodichloromethane	0	-	15	0	–	-	–	0.00577	-	0.00651	–	0.00305	–
Bromomethane	0	-	21	0	–	-	–	0.005	-	0.013	–	0.00507	–
2-Butanone	0	-	21	0	–	-	–	0.0231	-	0.1	–	0.023	–
Carbon disulfide	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Carbon tetrachloride	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
CFC-11	0	-	21	0	–	-	–	0.00597	-	0.0128	–	0.00535	–
CFC-12	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Chlorodibromomethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Chloroethane	0	-	21	0	–	-	–	0.01	-	0.013	–	0.00579	–
2-Chloroethyl vinyl ether	0	-	21	0	–	-	–	0.01	-	0.013	–	0.00579	–
Chloroform	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Chloromethane	0	-	21	0	–	-	–	0.01	-	0.013	–	0.00579	–
2-Chlorophenol	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Dibenzofuran	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
Dibromomethane	0	-	21	0	–	-	–	0.00577	-	0.02	–	0.00504	–
1,2-Dichlorobenzene	0	-	21	0	–	-	–	0.00577	-	0.33	–	0.0493	–
1,4-Dichlorobenzene	0	-	21	0	–	-	–	0.00577	-	0.33	–	0.0493	–
1,4 Dichloro-2-butene	0	-	21	0	–	-	–	0.0115	-	0.02	–	0.00721	–
1,1-Dichloroethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,2-Dichloroethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,1-Dichloroethylene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
cis-1,2-Dichloroethene	0	-	15	0	–	-	–	0.00577	-	0.00651	–	0.00305	–
trans-1,2-Dichloroethene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Dichloromethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,2-Dichloropropane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
cis-1,3-Dichloropropene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
trans-1,3-Dichloropropene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Ethanol	0	-	6	0	–	-	–	1	-	1	–	0.5	–

Table E.7.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethyl methacrylate	0	-	21	0	–	-	–	0.00577	-	0.02	–	0.00504	–
Ethylbenzene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Iodomethane	0	-	21	0	–	-	–	0.0115	-	0.02	–	0.00721	–
m-Dichlorobenzene	0	-	21	0	–	-	–	0.00577	-	0.33	–	0.0493	–
Methyl n-butyl ketone	0	-	21	0	–	-	–	0.0231	-	0.05	–	0.0159	–
Methylbenzene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
4-Methyl-2-pentanone (MIBK)	0	-	21	0	–	-	–	0.0231	-	0.05	–	0.0159	–
Nitrobenzene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Styrene (monomer)	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Tetrachloroethene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,1,2,2-Tetrachloroethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,1,1-Trichloroethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,1,2-Trichloroethane	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
1,2,3-Trichloropropane	0	-	21	0	–	-	–	0.00577	-	0.02	–	0.00504	–
1,2,4-Trichlorobenzene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Trichloroethylene	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Vinyl acetate	0	-	21	0	–	-	–	0.01	-	0.026	–	0.0102	–
Vinyl chloride	0	-	21	0	–	-	–	0.01	-	0.013	–	0.00579	–
Xylenes	0	-	21	0	–	-	–	0.005	-	0.00651	–	0.0029	–
Semi Volatile Organic Compounds													
Benzidine	0	-	21	0	–	-	–	1.7	-	2.08	–	0.941	–
Benzoic acid	0	-	21	0	–	-	–	1.7	-	2.08	–	0.941	–
Benzyl alcohol	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
Benzyl butyl phthalate	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Bis(2-chloroethoxy)methane	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Bis(2-ethylhexyl)phthalate	1	-	21	4.76	0.438	-	0.438	0.33	-	0.43	SWMU 38-39 SB-04(12/1/1993)	0.203	–
4-Bromophenyl phenyl ether	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
p-Chloroaniline	0	-	15	0	–	-	–	0.00597	-	0.424	–	0.161	–
4-Chloro-3-methylphenol	0	-	21	0	–	-	–	0.381	-	0.66	–	0.238	–
4-Chlorophenyl phenyl ether	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
3,3'-Dichlorobenzidine	0	-	21	0	–	-	–	0.381	-	0.66	–	0.238	–
2,4-Dichlorophenol	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Diethyl phthalate	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
2,4-Dimethylphenol	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
2,4-Dinitrophenol	0	-	21	0	–	-	–	1.7	-	2.08	–	0.941	–
2,4-Dinitrotoluene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
1,2-Diphenylhydrazine	0	-	15	0	–	-	–	1.85	-	2.08	–	0.978	–
Dimethyl phthalate	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–

Table E.7.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Di-n-butyl phthalate	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Di-n-octyl phthalate	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Diphenylamine	0	-	15	0	–	-	–	1.15	-	1.3	–	0.609	–
Hexachloro-1,3-butadiene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Hexachlorobenzene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Hexachlorocyclopentadiene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Hexachloroethane	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Methanamine, n-methyl-n-nitroso	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	21	0	–	-	–	1.7	-	2.08	–	0.941	–
2-Methylphenol	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
4-Methylphenol	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
2-Nitroaniline	0	-	15	0	–	-	–	1.85	-	2.08	–	0.978	–
3-Nitroaniline	0	-	15	0	–	-	–	1.85	-	2.08	–	0.978	–
p-Nitroaniline	0	-	15	0	–	-	–	1.85	-	2.08	–	0.978	–
2-Nitrophenol	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
4-Nitrophenol	0	-	21	0	–	-	–	1.7	-	2.08	–	0.941	–
n-Nitrosodi-n-propylamine	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
n-Nitrosodiphenylamine	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Pentachlorophenol	0	-	21	0	–	-	–	1.7	-	2.08	–	0.941	–
Phenol	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Tribromomethane	0	-	15	0	–	-	–	0.00577	-	0.00655	–	0.00306	–
2,4,5-Trichlorophenol	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
2,4,6-Trichlorophenol	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Acenaphthylene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Anthracene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Benzo(a)anthracene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Benzo(a)pyrene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Benzo(b)fluoranthene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Benzo(g,h,i)perylene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Benzo(k)fluoranthene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
1,2-Benzphenanthracene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
1-Chloronaphthalene	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
2-Chloronaphthalene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Dibenz(a,h)anthracene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Fluoranthene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–

Table E.7.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Fluorene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Indeno(1,2,3-cd)pyrene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
2-Methylnaphthalene	0	-	15	0	–	-	–	0.381	-	0.43	–	0.202	–
Naphthalene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Phenanthrene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Pyrene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–
Pesticides													
Aldrin	0	-	21	0	–	-	–	0.00309	-	0.0035	–	0.00165	–
alpha-BHC	0	-	21	0	–	-	–	0.00232	-	0.0034	–	0.00136	–
beta-BHC	0	-	21	0	–	-	–	0.0034	-	0.00526	–	0.00224	–
Camphechlor	0	-	21	0	–	-	–	0.067	-	0.21	–	0.0797	–
Chlordane	0	-	21	0	–	-	–	0.0109	-	0.034	–	0.00896	–
4,4-DDD	0	-	21	0	–	-	–	0.0067	-	0.00964	–	0.00417	–
4,4-DDE	0	-	21	0	–	-	–	0.00309	-	0.0067	–	0.00213	–
4,4-DDT	0	-	21	0	–	-	–	0.0067	-	0.0105	–	0.00447	–
delta-BHC	0	-	21	0	–	-	–	0.0034	-	0.00789	–	0.00312	–
Dieldrin	0	-	21	0	–	-	–	0.00155	-	0.0067	–	0.00154	–
Endosulfan I	0	-	21	0	–	-	–	0.0034	-	0.0123	–	0.00459	–
Endosulfan II	0	-	21	0	–	-	–	0.00309	-	0.0067	–	0.00213	–
Endosulfan sulfate	0	-	21	0	–	-	–	0.0067	-	0.0579	–	0.0203	–
Endrin	0	-	21	0	–	-	–	0.00464	-	0.0067	–	0.00271	–
Endrin aldehyde	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	21	0	–	-	–	0.00309	-	0.0035	–	0.00165	–
Heptachlor	0	-	21	0	–	-	–	0.00232	-	0.0034	–	0.00136	–
Heptachlor epoxide	0	-	21	0	–	-	–	0.0034	-	0.0727	–	0.0248	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	-	21	0	–	-	–	0.034	-	0.154	–	0.0561	–
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	2	-	15	13.3	98	-	999	35.8	-	39.2	SWMU 38-39 SB-04(12/1/1993)	89.1	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Aroclor 1232	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Aroclor 1242	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Aroclor 1254	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Aroclor 1260	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Aroclor-1016	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Aroclor-1248	0	-	21	0	–	-	–	0.034	-	0.207	–	0.0738	–
Explosives													
2,6-Dinitrotoluene	0	-	21	0	–	-	–	0.33	-	0.43	–	0.191	–

Table E.7.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Inorganics													
Arsenic	9	-	20	45	9.29	-	17.5	2.88	-	55	SWMU 38-39 SB-05(12/2/1993)	13.3	13.68
Barium	12	-	20	60	42.4	-	144	30.2	-	110	SWMU 38-39 SB-03(12/1/1993)	55.8	70.54
Cadmium	0	-	20	0	–	-	–	0.98	-	6.55	–	2.48	–
Chromium	0	-	14	0	–	-	–	28.8	-	32.8	–	15.3	–
Lead	5	-	20	25	3.24	-	20	3.01	-	27	39SSD3(4/4/1992)	5.97	6.899
Mercury	2	-	20	10	0.0265	-	0.0278	0.0239	-	0.1	SWMU 38-39 SB-08(12/2/1993)	0.0231	–
Selenium	6	-	20	30	4.51	-	11.4	2.88	-	55	SWMU 38-39 SB-06(12/2/1993)	9.57	6.291
Silver	2	-	20	10	32.9	-	38.6	2	-	32.8	SWMU 38-39 SB-08(12/2/1993)	13.5	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.7.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetaldehyde	0	-	26	0	–	-	–	0.017	-	0.0211	–	0.00945	–	Y
Acetone	4	-	32	12.5	0.0202	-	0.108	0.0221	-	0.1	HMW-33(11/5/1993)	0.0249	0.0272	Y
Acrolein	0	-	32	0	–	-	–	0.00552	-	0.2	–	0.0212	–	Y
Acrylonitrile	0	-	32	0	–	-	–	0.011	-	0.1	–	0.0144	–	Y
Benzene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Bis(2-chloroethyl)ether	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Bis(2-chloroisopropyl)ether	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Bromodichloromethane	0	-	26	0	–	-	–	0.00552	-	0.00686	–	0.00307	–	Y
Bromomethane	0	-	32	0	–	-	–	0.005	-	0.0137	–	0.00546	–	Y
2-Butanone	0	-	32	0	–	-	–	0.0221	-	0.1	–	0.0194	–	Y
Carbon disulfide	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Carbon tetrachloride	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
CFC-11	0	-	32	0	–	-	–	0.00604	-	0.0137	–	0.00583	–	Y
CFC-12	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Chlorobenzene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Chlorodibromomethane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	N
Chloroethane	0	-	32	0	–	-	–	0.01	-	0.0137	–	0.00593	–	Y
2-Chloroethyl vinyl ether	0	-	32	0	–	-	–	0.01	-	0.0137	–	0.00593	–	Y
Chloroform	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Chloromethane	0	-	32	0	–	-	–	0.01	-	0.0137	–	0.00593	–	Y
2-Chlorophenol	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Dibenzofuran	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	Y
Dibromomethane	0	-	32	0	–	-	–	0.00552	-	0.02	–	0.00437	–	Y
1,2-Dichlorobenzene	0	-	32	0	–	-	–	0.00552	-	0.33	–	0.0334	–	Y
1,4-Dichlorobenzene	0	-	32	0	–	-	–	0.00552	-	0.33	–	0.0334	–	Y
1,4 Dichloro-2-butene	0	-	32	0	–	-	–	0.011	-	0.02	–	0.00686	–	Y
1,1-Dichloroethane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
1,2-Dichloroethane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
1,1-Dichloroethylene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
cis-1,2-Dichloroethene	0	-	26	0	–	-	–	0.00552	-	0.00686	–	0.00307	–	Y
trans-1,2-Dichloroethene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Dichloromethane	0	-	22	0	–	-	–	0.005	-	0.00654	–	0.00294	–	Y
1,2-Dichloropropane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
cis-1,3-Dichloropropene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
trans-1,3-Dichloropropene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Ethanol	0	-	6	0	–	-	–	1	-	1	–	0.5	–	N

Table E.7.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Ethyl methacrylate	0	-	32	0	–	-	–	0.00552	-	0.02	–	0.00437	–	Y
Ethylbenzene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Iodomethane	0	-	32	0	–	-	–	0.011	-	0.02	–	0.00686	–	Y
m-Dichlorobenzene	0	-	32	0	–	-	–	0.00552	-	0.33	–	0.0334	–	Y
Methyl n-butyl ketone	0	-	32	0	–	-	–	0.0221	-	0.05	–	0.0147	–	Y
Methylbenzene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	32	0	–	-	–	0.0221	-	0.05	–	0.0147	–	Y
Nitrobenzene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Styrene (monomer)	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Tetrachloroethene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
1,1,2,2-Tetrachloroethane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
1,1,1-Trichloroethane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
1,1,2-Trichloroethane	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
1,2,3-Trichloropropane	0	-	32	0	–	-	–	0.00552	-	0.02	–	0.00437	–	Y
1,2,4-Trichlorobenzene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Trichloroethylene	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Vinyl acetate	0	-	32	0	–	-	–	0.01	-	0.0274	–	0.0109	–	Y
Vinyl chloride	0	-	32	0	–	-	–	0.01	-	0.0137	–	0.00593	–	Y
Xylenes	0	-	32	0	–	-	–	0.005	-	0.00686	–	0.00296	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	32	0	–	-	–	1.7	-	2.2	–	0.959	–	N
Benzoic acid	0	-	32	0	–	-	–	1.7	-	2.2	–	0.959	–	N
Benzyl alcohol	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	N
Benzyl butyl phthalate	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Bis(2-chloroethoxy)methane	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Bis(2-ethylhexyl)phthalate	1	-	32	3.13	0.465	-	0.465	0.33	-	0.453	SWMU 38-39 SB-07(12/2/1993)	0.204	–	N
4-Bromophenyl phenyl ether	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
p-Chloroaniline	0	-	26	0	–	-	–	0.00604	-	0.453	–	0.195	–	N
4-Chloro-3-methylphenol	0	-	32	0	–	-	–	0.365	-	0.66	–	0.227	–	N
4-Chlorophenyl phenyl ether	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
3,3'-Dichlorobenzidine	0	-	32	0	–	-	–	0.365	-	0.66	–	0.227	–	N
2,4-Dichlorophenol	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Diethyl phthalate	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
2,4-Dimethylphenol	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
2,4-Dinitrophenol	0	-	32	0	–	-	–	1.7	-	2.2	–	0.959	–	N
2,4-Dinitrotoluene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
1,2-Diphenylhydrazine	0	-	26	0	–	-	–	1.77	-	2.2	–	0.984	–	N
Dimethyl phthalate	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N

Table E.7.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Di-n-butyl phthalate	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Di-n-octyl phthalate	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Diphenylamine	0	-	26	0	–	-	–	1.1	-	1.37	–	0.613	–	N
Hexachloro-1,3-butadiene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Hexachlorobenzene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Hexachlorocyclopentadiene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Hexachloroethane	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Methanamine, n-methyl-n-nitroso	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–	N
2-Methyl-4,6-dinitrophenol	0	-	32	0	–	-	–	1.7	-	2.2	–	0.959	–	N
2-Methylphenol	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	N
4-Methylphenol	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	N
2-Nitroaniline	0	-	26	0	–	-	–	1.77	-	2.2	–	0.984	–	N
3-Nitroaniline	0	-	26	0	–	-	–	1.77	-	2.2	–	0.984	–	N
p-Nitroaniline	0	-	26	0	–	-	–	1.77	-	2.2	–	0.984	–	N
2-Nitrophenol	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
4-Nitrophenol	0	-	32	0	–	-	–	1.7	-	2.2	–	0.959	–	N
n-Nitrosodi-n-propylamine	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
n-Nitrosodiphenylamine	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Pentachlorophenol	0	-	32	0	–	-	–	1.7	-	2.2	–	0.959	–	N
Phenol	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Tribromomethane	0	-	26	0	–	-	–	0.00552	-	0.00686	–	0.00307	–	N
2,4,5-Trichlorophenol	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	N
2,4,6-Trichlorophenol	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Acenaphthylene	0	-	22	0	–	-	–	0.33	-	0.432	–	0.194	–	Y
Anthracene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Benzo(a)anthracene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Benzo(a)pyrene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Benzo(b)fluoranthene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Benzo(g,h,i)perylene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Benzo(k)fluoranthene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
1,2-Benzphenanthracene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
1-Chloronaphthalene	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	Y
2-Chloronaphthalene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Dibenz(a,h)anthracene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Fluoranthene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N

Table E.7.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Fluorene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Indeno(1,2,3-cd)pyrene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
2-Methylnaphthalene	0	-	26	0	–	-	–	0.365	-	0.453	–	0.203	–	Y
Naphthalene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Phenanthrene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	Y
Pyrene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N
Pesticides														
Aldrin	0	-	32	0	–	-	–	0.00296	-	0.00368	–	0.00165	–	N
alpha-BHC	0	-	32	0	–	-	–	0.00222	-	0.0034	–	0.00132	–	N
beta-BHC	0	-	32	0	–	-	–	0.0034	-	0.00552	–	0.00233	–	N
Camphechlor	0	-	32	0	–	-	–	0.067	-	0.221	–	0.0866	–	N
Chlordane	0	-	32	0	–	-	–	0.0104	-	0.034	–	0.00788	–	N
4,4-DDD	0	-	32	0	–	-	–	0.0067	-	0.0101	–	0.0043	–	N
4,4-DDE	0	-	32	0	–	-	–	0.00296	-	0.0067	–	0.00196	–	N
4,4-DDT	0	-	32	0	–	-	–	0.0067	-	0.011	–	0.00464	–	N
delta-BHC	0	-	32	0	–	-	–	0.0034	-	0.00828	–	0.00333	–	N
Dieldrin	0	-	32	0	–	-	–	0.00148	-	0.0067	–	0.0013	–	N
Endosulfan I	0	-	32	0	–	-	–	0.0034	-	0.0129	–	0.00501	–	N
Endosulfan II	0	-	32	0	–	-	–	0.00296	-	0.0067	–	0.00196	–	N
Endosulfan sulfate	0	-	32	0	–	-	–	0.0067	-	0.0607	–	0.0227	–	N
Endrin	0	-	32	0	–	-	–	0.00444	-	0.0067	–	0.00263	–	N
Endrin aldehyde	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
gamma-BHC	0	-	32	0	–	-	–	0.00296	-	0.00368	–	0.00165	–	N
Heptachlor	0	-	32	0	–	-	–	0.00222	-	0.0034	–	0.00132	–	N
Heptachlor epoxide	0	-	32	0	–	-	–	0.0034	-	0.0763	–	0.0281	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	-	32	0	–	-	–	0.034	-	0.161	–	0.0618	–	N
Total Petroleum Hydrocarbons (TPH)														
Total Petroleum Hydrocarbons (TPH)	1	-	26	3.85	98	-	98	33.1	-	41.1	SWMU 38-39 SB-08(12/2/1993)	21.5	–	N
Polychlorinated Biphenyls														
Aroclor 1221	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Aroclor 1232	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Aroclor 1242	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Aroclor 1254	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Aroclor 1260	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Aroclor-1016	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Aroclor-1248	0	-	32	0	–	-	–	0.034	-	0.217	–	0.082	–	N
Explosives														
2,6-Dinitrotoluene	0	-	32	0	–	-	–	0.33	-	0.453	–	0.196	–	N

Table E.7.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Inorganics														
Arsenic	16	-	31	51.6	4.11	-	35.8	2.88	-	55	HMW-35(11/15/1993)	11.1	11.95	N
Barium	24	-	31	77.4	25	-	148	30.2	-	110	SWMU 38-39 SB-01(12/1/1993)	73.6	88.13	N
Cadmium	0	-	31	0	–	-	–	0.98	-	6.54	–	1.92	–	N
Chromium	8	-	25	32	6	-	16	5.5	-	32.7	HMW-33(11/5/1993)	13	13.18	N
Lead	16	-	31	51.6	3.07	-	20	3.01	-	27	39SSD3(4/4/1992)	5.99	6.25	N
Mercury	3	-	31	9.68	0.0265	-	0.0288	0.0221	-	0.241	SWMU 38-39 SB-08(12/2/1993)	0.0268	–	N
Selenium	4	-	31	12.9	3.04	-	10.6	2.88	-	55	HMW-34(11/8/1993)	6.35	4.728	N
Silver	10	-	31	32.3	7.89	-	47.5	2	-	32.7	SWMU 38-39 SB-08(12/2/1993)	13.8	14.06	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	11	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Acrylonitrile	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bis(2-chloroethyl)ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Bis(2-chloroisopropyl)ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Bromobenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	11	0	–	-	–	0.001	-	0.005	–	0.00195	–	Y
2-Butanone	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
sec-Butylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
tert-Butylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	2	-	11	18.2	0.001	-	0.00117	0.001	-	0.001	HMW-31	0.000606	–	Y
CFC-12	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	11	-	11	100	0.00135	-	0.00361	–	-	–	HMW-31	0.00184	0.00216	Y
Chloromethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
2-Chlorotoluene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibenzofuran	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	11	0	–	-	–	0.002	-	0.005	–	0.00209	–	N
1,2-Dibromoethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	11	0	–	-	–	0.001	-	5	–	0.455	–	Y
1,4-Dichlorobenzene	0	-	11	0	–	-	–	0.001	-	5	–	0.455	–	Y
trans-1,4-Dichlorobutene	0	-	11	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	11	-	11	100	0.00396	-	0.00609	–	-	–	HMW-33	0.00487	0.00524	Y
cis-1,2-Dichloroethene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	11	0	–	-	–	0.001	-	5	–	0.455	–	Y
Methyl n-butyl ketone	0	-	11	0	–	-	–	0.001	-	0.005	–	0.00195	–	Y
Methylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	9	0	–	-	–	0.0005	-	5	–	0.557	–	Y
n-Propylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	11	-	11	100	0.00495	-	0.00906	–	-	–	HMW-33	0.00647	0.00696	Y
Vinyl chloride	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	1	-	9	11.1	0.00004	-	0.00004	0.005	-	5	HMW-33	0.557	–	N

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Aniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzidine	0	-	9	0	–	-	–	0.01	-	15	–	1.68	–	N
Benzoic acid	0	-	9	0	–	-	–	0.005	-	20	–	2.22	–	N
Benzyl alcohol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzyl butyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Bis(2-chloroethoxy)methane	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Bis(2-ethylhexyl)phthalate	0	-	9	0	–	-	–	0.005	-	10	–	1.12	–	N
4-Bromophenyl phenyl ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
p-Chloroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
4-Chloro-3-methylphenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Chlorophenols	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
4-Chlorophenyl phenyl ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
m,p-Cresol	0	-	8	0	–	-	–	0.005	-	5	–	0.315	–	N
Dibenz[a,,j]acridine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
3,3'-Dichlorobenzidine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4-Dichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,6-Dichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
Diethyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
4-Dimethylaminoazobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4-Dimethylphenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4-Dinitrophenol	0	-	9	0	–	-	–	0.005	-	20	–	2.22	–	N
2,4-Dinitrotoluene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
a,a-Dimethylphenethylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Dimethyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Di-n-butyl phthalate	1	-	9	11.1	0.00019	-	0.00019	0.005	-	5	HMW-33	0.557	–	N
m-Dinitrobenzene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Di-n-octyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,4-Dioxane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Diphenylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Diphenylhydrazine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Ethyl methanesulfonate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Hexachloro-1,3-butadiene	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Hexachlorocyclopentadiene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Hexachloroethane	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Methanamine, n-methyl-n-nitroso	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Methyl-4,6-dinitrophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Methyl methanesulfonate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Methylphenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
3-Methylphenol	0	-	1	0	–	-	–	5	-	5	–	2.5	–	N
4-Methylphenol	0	-	1	0	–	-	–	5	-	5	–	2.5	–	N
2-Methyl pyridine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1-Naphthylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Naphthylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Nitroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
3-Nitroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
p-Nitroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Nitrophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
4-Nitrophenol	0	-	9	0	–	-	–	0.025	-	5	–	0.565	–	N
n-Nitrosodi-n-butylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
n-Nitrosodi-n-propylamine	1	-	9	11.1	0.0101	-	0.0101	0.005	-	5	HMW-33	0.558	–	N
n-Nitrosopiperidine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Pentachlorobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Pentachlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
Phenacetin	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Phenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Propyzamide	1	-	9	11.1	0.00004	-	0.00004	0.005	-	5	HMW-33	0.557	–	N
Pyridine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,2,4,5-Tetrachlorobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Tribromomethane	0	-	11	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4,6-Trichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,3,5-Trinitrobenzene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Acenaphthylene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Anthracene	1	-	9	11.1	0.00008	-	0.00008	0.005	-	5	HMW-33	0.557	–	Y
Benzo(a)anthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(a)pyrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(b)fluoranthene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(g,h,i)perylene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(k)fluoranthene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,2-Benzphenanthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1-Chloronaphthalene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
2-Chloronaphthalene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Dibenz(a,h)anthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
7,12-Dimethylbenz(a)anthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Fluoranthene	1	-	9	11.1	0.00017	-	0.00017	0.005	-	5	HMW-33	0.557	–	N
Fluorene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Indeno(1,2,3-cd)pyrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
3-Methylchloranthrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1-Methylnaphthalene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
2-Methylnaphthalene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Naphthalene	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Phenanthrene	1	-	9	11.1	0.00009	-	0.00009	0.005	-	5	HMW-33	0.557	–	Y
Pyrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Herbicides														
2,4-D	0	-	3	0	–	-	–	0.0002	-	0.004	–	0.00137	–	N
2,4-DB	0	-	3	0	–	-	–	0.0002	-	0.004	–	0.00137	–	N
Dicamba	0	-	3	0	–	-	–	0.0002	-	0.002	–	0.0007	–	N
2,2-Dichlor0propionic acid	0	-	3	0	–	-	–	0.001	-	0.002	–	0.000833	–	N
Dichlorprop	0	-	3	0	–	-	–	0.0002	-	0.004	–	0.00137	–	N
MCPP	0	-	3	0	–	-	–	0.01	-	0.4	–	0.135	–	N
2,4,5-T	0	-	3	0	–	-	–	0.0002	-	0.001	–	0.000367	–	N
2,4,5-TP (Silvex)	0	-	3	0	–	-	–	0.0002	-	0.001	–	0.000367	–	N
Pesticides														
Aldrin	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
alpha-BHC	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
alpha-Chlordane	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
beta-BHC	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Camphechlor	0	-	6	0	–	-	–	0.005	-	1	–	0.168	–	N
4,4-DDD	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
4,4-DDE	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
4,4-DDT	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
delta-BHC	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Dieldrin	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Endosulfan I	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Endosulfan II	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Endosulfan sulfate	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Endrin	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Endrin aldehyde	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Endrin ketone	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
gamma-BHC	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
gamma-Chlordane	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Heptachlor	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Heptachlor epoxide	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
MCPA	0	-	3	0	–	-	–	0.01	-	0.4	–	0.135	–	N
Pentachloronitrobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	-	6	0	–	-	–	0.0005	-	0.1	–	0.0168	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	11	0	–	-	–	5	-	50	–	12.7	–	N
Gasoline Range Organics (GRO)	0	-	11	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Explosives														
2-Amino-4,6-dinitrotoluene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-2,6-dinitrotoluene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-dnt / 2-Amino-dnt	0	-	7	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,6-DNT / 2,4-DNT	0	-	7	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2-Nitrotoluene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
3-Nitrotoluene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Perchlorate	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–	N
RDX	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Aluminum	1	-	6	16.7	0.832	-	0.832	0.03	-	0.1	HMW-33	0.157	–	N
Ammonia	0	-	6	0	–	-	–	1	-	1	–	0.5	–	N
Antimony	0	-	3	0	–	-	–	0.02	-	0.05	–	0.015	–	N
Arsenic	1	-	11	9.09	0.026	-	0.026	0.005	-	0.01	HMW-33	0.00577	–	N
Barium	7	-	11	63.6	0.007	-	0.013	0.01	-	0.1	HMW-33	0.0124	0.0104	N
Beryllium	2	-	9	22.2	0.006	-	0.011	0.002	-	0.0025	HMW-33	0.00281	–	N
Boron	6	-	6	100	6.32	-	8.05	–	-	–	HMW-33	7.2	–	N
Cadmium	1	-	11	9.09	0.003	-	0.003	0.001	-	0.005	HMW-31	0.001	–	N
Calcium metal	3	-	3	100	526	-	562	–	-	–	HMW-33	545	–	N
Chromium	11	-	11	100	0.58	-	1.54	–	-	–	HMW-33	0.894	1.033	N
Chromium (Hexavalent)	4	-	4	100	1.14	-	1.47	–	-	–	HMW-33	1.29	–	N
Cobalt	0	-	9	0	–	-	–	0.002	-	0.02	–	0.00383	–	N
Copper	5	-	9	55.6	0.041	-	0.099	0.005	-	0.005	HMW-33	0.0392	0.0688	N
Cyanide (Total)	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Fluoride	8	-	11	72.7	2.17	-	4.14	0.2	-	0.2	HMW-33	2.59	3.641	N
Iron	3	-	6	50	0.025	-	0.518	0.01	-	0.01	HMW-33	0.167	–	N
Lead	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–	N
Lithium	2	-	2	100	0.828	-	1.18	–	-	–	HMW-33	1	–	N

Table E.7.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Magnesium	3	-	3	100	2190	-	2490	–	-	–	HMW-33	2320	–	N
Manganese	0	-	6	0	–	-	–	0.025	-	0.025	–	0.0125	–	N
Mercury	0	-	11	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Molybdenum	6	-	6	100	0.923	-	1.28	–	-	–	HMW-33	1.07	–	N
Nickel	0	-	9	0	–	-	–	0.005	-	0.025	–	0.00417	–	N
Nitrate	8	-	8	100	95.3	-	205	–	-	–	HMW-33	147	171.5	N
Nitrate + Nitrite	3	-	3	100	104	-	225	–	-	–	HMW-33	145	–	N
Phosphorus	3	-	6	50	0.085	-	0.265	0.05	-	0.05	HMW-33	0.0992	–	N
Potassium	3	-	3	100	150	-	268	–	-	–	HMW-33	208	–	N
Selenium	8	-	11	72.7	0.325	-	0.671	0.01	-	0.05	HMW-33	0.386	0.594	N
Silver	0	-	11	0	–	-	–	0.002	-	0.0125	–	0.00193	–	N
Sodium	3	-	3	100	5220	-	6680	–	-	–	HMW-33	6110	–	N
Strontium	6	-	6	100	6.98	-	17.9	–	-	–	HMW-33	11.2	–	N
Sulfate	11	-	11	100	8060	-	17600	–	-	–	HMW-33	13200	14400	N
Thallium	0	-	3	0	–	-	–	0.02	-	0.05	–	0.02	–	N
Tin	1	-	9	11.1	0.035	-	0.035	0.025	-	0.1	HMW-33	0.0192	–	N
Vanadium	8	-	9	88.9	0.015	-	0.054	0.005	-	0.005	HMW-33	0.0279	0.0365	N
Zinc	3	-	11	27.3	0.006	-	0.051	0.005	-	0.025	HMW-33	0.00936	–	N
Other														
Bromide	9	-	9	100	1.81	-	10.4	–	-	–	HMW-33	4.35	5.713	N
Chloride	11	-	11	100	3100	-	6660	–	-	–	HMW-33	5510	6117	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.7-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residentia Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Volatile Organic Compounds																	
Acetone	0 / 6	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0 / 6	0	–	0.2	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0 / 6	0	–	0.1	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0 / 6	0	–	0.005	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0 / 6	0	–	0.33	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0 / 6	0	–	0.33	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromomethane	0 / 6	0	–	0.005	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0 / 6	0	–	0.1	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0 / 6	0	–	0.005	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0 / 6	0	–	0.005	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0 / 6	0	–	0.01	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0 / 6	0	–	0.02	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0 / 6	0	–	0.005	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0 / 6	0	–	0.005	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0 / 6	0	–	0.01	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0 / 6	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0 / 6	0	–	0.005	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0 / 6	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0 / 6	0	–	0.33	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0 / 6	0	–	0.02	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0 / 6	0	–	0.33	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0 / 6	0	–	0.33	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0 / 6	0	–	0.02	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0 / 6	0	–	0.005	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0 / 6	0	–	0.005	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0 / 6	0	–	0.005	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0 / 6	0	–	0.005	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0 / 6	0	–	0.005	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0 / 6	0	–	0.005	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0 / 6	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0 / 6	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethanol	0 / 6	0	–	1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Ethyl methacrylate	0 / 6	0	–	0.02	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0 / 6	0	–	0.005	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0 / 6	0	–	0.02	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0 / 6	0	–	0.33	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0 / 6	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0 / 6	0	–	0.005	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone(mibk)	0 / 6	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0 / 6	0	–	0.33	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0 / 6	0	–	0.005	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0 / 6	0	–	0.005	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0 / 6	0	–	0.005	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0 / 6	0	–	0.005	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0 / 6	0	–	0.005	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0 / 6	0	–	0.02	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0 / 6	0	–	0.33	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0 / 6	0	–	0.005	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0 / 6	0	–	0.01	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0 / 6	0	–	0.01	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0 / 6	0	–	0.005	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																	
Benzidine	0 / 6	0	–	1.7 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0 / 6	0	–	1.7	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl butyl phthalate	0 / 6	0	–	0.33	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0 / 6	0	–	0.33	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no

Table E.7-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Bis(2-ethylhexyl)phthalate	0 / 6	0	–	0.33	–	3.47E+02 c	1.37E+03 c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0 / 6	0	–	0.33	–	NA n	NA n	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0 / 6	0	–	0.66	–	6.10E+03 n	6.20E+04 n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0 / 6	0	–	0.33	–	NA n	NA n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0 / 6	0	–	0.66	–	1.10E+01 c	3.80E+01 c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0 / 6	0	–	0.33	–	1.83E+02 n	2.05E+03 n	–	–	–	–	–	–	no	no
Diethyl phthalate	0 / 6	0	–	0.33	–	4.89E+04 n	5.47E+05 n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0 / 6	0	–	0.33	–	1.22E+03 n	1.37E+04 n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0 / 6	0	–	1.7	–	1.22E+02 n	1.37E+03 n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0 / 6	0	–	0.33	–	1.57E+01 c	1.03E+02 c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0 / 6	0	–	0.33	–	6.11E+05 n	6.84E+06 n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0 / 6	0	–	0.33	–	6.11E+03 n	6.84E+04 n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0 / 6	0	–	0.33	–	2.44E+03 n	2.74E+04 n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0 / 6	0	–	0.33	–	6.11E+01 c	2.46E+02 c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0 / 6	0	–	0.33	–	3.04E+00 c	1.20E+01 c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0 / 6	0	–	0.33	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–	no	no
Hexachloroethane	0 / 6	0	–	0.33	–	6.11E+01 n	6.84E+02 n	–	–	–	–	–	–	no	no
Methanamine, n-methyl-n-nitroso	0 / 6	0	–	0.33 ^	–	9.54E-02 c	3.76E-01 c	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0 / 6	0	–	1.7	–	6.10E+00 n	6.20E+01 n	–	–	–	–	–	–	no	no
2-Nitrophenol	0 / 6	0	–	0.33	–	NA n	NA n	–	–	–	–	–	–	no	no
4-Nitrophenol	0 / 6	0	–	1.7	–	NA n	NA n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0 / 6	0	–	0.33	–	6.90E-01 c	2.50E+00 c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0 / 6	0	–	0.33	–	9.93E+02 c	3.91E+03 c	–	–	–	–	–	–	no	no
Pentachlorophenol	0 / 6	0	–	1.7	–	2.98E+01 c	1.00E+02 c	–	–	–	–	–	–	no	no
Phenol	0 / 6	0	–	0.33	–	1.83E+04 n	2.05E+05 n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0 / 6	0	–	0.33	–	6.11E+01 n	6.84E+02 n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0 / 6	0	–	0.33	–	5.12E+03 c	2.02E+04 c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	0 / 6	0	–	0.33	–	3.44E+03 n	3.67E+04 n	–	–	–	–	–	–	no	no
Acenaphthylene	0 / 6	0	–	0.33	–	3.44E+03 n	3.67E+04 n	–	–	–	–	–	–	no	no
Anthracene	0 / 6	0	–	0.33	–	1.72E+04 n	1.83E+05 n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0 / 6	0	–	0.33	–	6.21E+00 c	2.34E+01 c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0 / 6	0	–	0.33	–	6.21E-01 c	2.34E+00 c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0 / 6	0	–	0.33	–	6.21E+00 c	2.34E+01 c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0 / 6	0	–	0.33	–	1.72E+03 n	1.83E+04 n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0 / 6	0	–	0.33	–	6.21E+01 c	2.34E+02 c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0 / 6	0	–	0.33	–	6.21E+02 c	2.34E+03 c	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0 / 6	0	–	0.33	–	6.26E+03 n	9.08E+04 n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0 / 6	0	–	0.33	–	6.21E-01 c	2.34E+00 c	–	–	–	–	–	–	no	no
Fluoranthene	0 / 6	0	–	0.33	–	2.29E+03 n	2.44E+04 n	–	–	–	–	–	–	no	no
Fluorene	0 / 6	0	–	0.33	–	2.29E+03 n	2.44E+04 n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0 / 6	0	–	0.33	–	6.21E+00 c	2.34E+01 c	–	–	–	–	–	–	no	no
Naphthalene	0 / 6	0	–	0.33	–	4.50E+01 c	2.52E+02 c	–	–	–	–	–	–	no	no
Phenanthrene	0 / 6	0	–	0.33	–	1.83E+03 n	2.05E+04 n	–	–	–	–	–	–	no	no
Pyrene	0 / 6	0	–	0.33	–	1.72E+03 n	1.83E+04 n	–	–	–	–	–	–	no	no
Pesticides															
Aldrin	0 / 6	0	–	0.0034	–	2.84E-01 c	1.12E+00 c	–	–	–	–	–	–	no	no
alpha-BHC	0 / 6	0	–	0.0034	–	7.70E-01 c	2.70E+00 c	–	–	–	–	–	–	no	no
beta-BHC	0 / 6	0	–	0.0034	–	2.70E+00 c	1.06E+01 c	–	–	–	–	–	–	no	no
Camphechlor	0 / 6	0	–	0.067	–	4.40E+00 c	1.60E+01 c	–	–	–	–	–	–	no	no
Chlordane	0 / 6	0	–	0.034	–	1.62E+01 c	7.19E+01 c	–	–	–	–	–	–	no	no
4,4-DDD	0 / 6	0	–	0.0067	–	2.03E+01 c	7.98E+01 c	–	–	–	–	–	–	no	no
4,4-DDE	0 / 6	0	–	0.0067	–	1.43E+01 c	5.63E+01 c	–	–	–	–	–	–	no	no
4,4-DDT	0 / 6	0	–	0.0067	–	1.72E+01 c	7.81E+01 c	–	–	–	–	–	–	no	no
delta-BHC	0 / 6	0	–	0.0034	–	2.11E+01 n	2.70E+02 n	–	–	–	–	–	–	no	no
Dieldrin	0 / 6	0	–	0.0067	–	3.04E-01 c	1.20E+00 c	–	–	–	–	–	–	no	no
Endosulfan I	0 / 6	0	–	0.0034	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–	no	no

Table E.7-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Endosulfan II	0 / 6	0	–	0.0067	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Endosulfan sulfate	0 / 6	0	–	0.0067	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Endrin	0 / 6	0	–	0.0067	–	1.83E+01	n	2.05E+02	n	–	–	–	–	–	–	no	no
Endrin aldehyde	0 / 6	0	–	0.0067	–	1.83E+01	n	2.05E+02	n	–	–	–	–	–	–	no	no
gamma-BHC	0 / 6	0	–	0.0034	–	5.17E+00	c	2.29E+01	c	–	–	–	–	–	–	no	no
Heptachlor	0 / 6	0	–	0.0034	–	1.08E+00	c	4.26E+00	c	–	–	–	–	–	–	no	no
Heptachlor epoxide	0 / 6	0	–	0.0034	–	5.30E-01	c	1.90E+00	c	–	–	–	–	–	–	no	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethan	0 / 6	0	–	0.034	–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–	no	no
Polychlorinated Biphenyls																	
Aroclor 1221	0 / 6	0	–	0.034	–	1.76E+00	c	7.06E+00	c	–	–	–	–	–	–	no	no
Aroclor 1232	0 / 6	0	–	0.034	–	1.76E+00	c	7.06E+00	c	–	–	–	–	–	–	no	no
Aroclor 1242	0 / 6	0	–	0.034	–	2.22E+00	c	8.26E+00	c	–	–	–	–	–	–	no	no
Aroclor 1254	0 / 6	0	–	0.034	–	1.12E+00	n	8.26E+00	n	–	–	–	–	–	–	no	no
Aroclor 1260	0 / 6	0	–	0.034	–	2.22E+00	c	8.26E+00	c	–	–	–	–	–	–	no	no
Aroclor-1016	0 / 6	0	–	0.034	–	3.90E+00	n	2.10E+02	n	–	–	–	–	–	–	no	no
Aroclor-1248	0 / 6	0	–	0.034	–	2.20E+00	c	7.40E+00	c	–	–	–	–	–	–	no	no
Explosives																	
2,6-Dinitrotoluene	0 / 6	0	–	0.33	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																	
Arsenic	0 / 6	0	–	55 ^	no	3.90E+00	c	1.77E+01	c	–	–	–	–	–	–	no	no
Barium	1 / 6	16.7	81	110	YES	1.56E+04	n	2.24E+05	n	no	no	–	5.19E-03	–	3.62E-04	no	no
Cadmium	0 / 6	0	–	2.7	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Lead	1 / 6	16.7	20	27	no	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	0 / 6	0	–	0.1	YES	7.71E+00	n	4.99E+01	n	–	–	–	–	–	–	no	no
Selenium	0 / 6	0	–	55	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	0 / 6	0	–	5.5	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Total Maximum / Screening Level Ratios												NA	0.005	NA	0.0004		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												NA	0.005	NA	0.0004		

Target Organ Max/SL Ratios		
Kidney & Liver	0.005	0.0004
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	NA	NA
Lungs	NA	NA
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	NA	NA
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.005	0.0004
Immune System	NA	NA
Development	NA	NA
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	NA	NA

Notes:
– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.

Table E.7-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residentia Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial

mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.7-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetaldehyde	0	/	15	0	–	0.0201	–	1.01E+03	n	–	–	–	no
Acetone	1	/	21	4.76	0.0342	0.1	–	2.63E+05	n	no	–	1.30E-07	no
Acrolein	0	/	21	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	21	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	21	0	–	0.0065	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	21	0	–	0.43	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	21	0	–	0.43	–	3.10E+03	c	–	–	–	no
Bromodichloromethane	0	/	15	0	–	0.0065	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/	21	0	–	0.013	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	21	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	21	0	–	0.0065	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	21	0	–	0.0065	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	21	0	–	0.0128	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	6	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	21	0	–	0.0065	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	21	0	–	0.0065	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	21	0	–	0.013	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	21	0	–	0.013	–	NA	n	–	–	–	no
Chloroform	0	/	21	0	–	0.0065	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	21	0	–	0.013	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	21	0	–	0.43	–	1.55E+03	n	–	–	–	no
Dibenzofuran	0	/	15	0	–	0.43	–	9.53E+02	n	–	–	–	no
Dibromomethane	0	/	21	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	21	0	–	0.33	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	21	0	–	0.33	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	21	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	21	0	–	0.0065	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	21	0	–	0.0065	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	21	0	–	0.0065	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	15	0	–	0.0065	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/	21	0	–	0.0065	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	21	0	–	0.0065	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	21	0	–	0.0065	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	21	0	–	0.0065	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	21	0	–	0.0065	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	6	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	21	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	21	0	–	0.0065	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	21	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	21	0	–	0.33	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	21	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	21	0	–	0.0065	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone(mibk)	0	/	21	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	21	0	–	0.43	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	21	0	–	0.0065	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	21	0	–	0.0065	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	21	0	–	0.0065	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	21	0	–	0.0065	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	21	0	–	0.0065	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	21	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	21	0	–	0.43	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	21	0	–	0.0065	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	21	0	–	0.026	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	21	0	–	0.013	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	21	0	–	0.0065	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds													

Table E.7-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Benzidine	0	/	21	0	–	2.08 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/	21	0	–	2.08	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/	15	0	–	0.43	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0	/	21	0	–	0.43	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	21	0	–	0.43	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	1	/	21	4.76	0.438	0.43	–	4.76E+03	n	no	–	9.19E-05	no
4-Bromophenyl phenyl ether	0	/	21	0	–	0.43	–	NA	n	–	–	–	no
p-Chloroaniline	0	/	15	0	–	0.424	–	8.34E+02	c	–	–	–	no
4-Chloro-3-methylphenol	0	/	21	0	–	0.66	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	21	0	–	0.43	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	21	0	–	0.66	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	21	0	–	0.43	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	21	0	–	0.43	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	21	0	–	0.43	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	21	0	–	2.08	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	21	0	–	0.43	–	4.76E+02	n	–	–	–	no
1,2-Diphenylhydrazine	0	/	15	0	–	2.08	–	2.07E+02	c	–	–	–	no
Dimethyl phthalate	0	/	21	0	–	0.43	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/	21	0	–	0.43	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/	21	0	–	0.43	–	9.53E+03	n	–	–	–	no
Diphenylamine	0	/	15	0	–	1.3	–	5.96E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	21	0	–	0.43	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	21	0	–	0.43	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	21	0	–	0.43	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	21	0	–	0.43	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	6	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	21	0	–	2.08	–	2.38E+01	n	–	–	–	no
2-Methylphenol	0	/	15	0	–	0.43	–	1.19E+04	n	–	–	–	no
4-Methylphenol	0	/	15	0	–	0.43	–	1.19E+03	n	–	–	–	no
2-Nitroaniline	0	/	15	0	–	2.08	–	3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/	15	0	–	2.08	–	3.88E+02	n	–	–	–	no
p-Nitroaniline	0	/	15	0	–	2.08	–	9.37E+02	n	–	–	–	no
2-Nitrophenol	0	/	21	0	–	0.43	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	21	0	–	2.08	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	21	0	–	0.43	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	21	0	–	0.43	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	21	0	–	2.08	–	1.03E+03	c	–	–	–	no
Phenol	0	/	21	0	–	0.43	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/	15	0	–	0.0066	–	4.76E+03	n	–	–	–	no
2,4,5-Trichlorophenol	0	/	15	0	–	0.43	–	2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	21	0	–	0.43	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	21	0	–	0.43	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	21	0	–	0.43	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	21	0	–	0.43	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	21	0	–	0.43	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	21	0	–	0.43	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	21	0	–	0.43	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	21	0	–	0.43	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	21	0	–	0.43	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	21	0	–	0.43	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	21	0	–	0.43	–	2.06E+04	c	–	–	–	no
1-Chloronaphthalene	0	/	15	0	–	0.43	–	2.48E+04	n	–	–	–	no
2-Chloronaphthalene	0	/	21	0	–	0.43	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	21	0	–	0.43	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	21	0	–	0.43	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	21	0	–	0.43	–	8.91E+03	n	–	–	–	no

Table E.7-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Indeno(1,2,3-cd)pyrene	0	/	21	0	–		0.43	–	2.13E+02	c	–	–	–	no
2-Methylnaphthalene	0	/	15	0	–		0.43	–	8.91E+02	n	–	–	–	no
Naphthalene	0	/	21	0	–		0.43	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	21	0	–		0.43	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	21	0	–		0.43	–	6.68E+03	n	–	–	–	no
Pesticides														
Aldrin	0	/	21	0	–		0.0035	–	7.15E+00	n	–	–	–	no
alpha-BHC	0	/	21	0	–		0.0034	–	2.63E+01	c	–	–	–	no
beta-BHC	0	/	21	0	–		0.0053	–	9.19E+01	c	–	–	–	no
Camphechlor	0	/	21	0	–		0.21	–	1.50E+02	c	–	–	–	no
Chlordane	0	/	21	0	–		0.034	–	1.35E+02	n	–	–	–	no
4,4-DDD	0	/	21	0	–		0.0096	–	6.95E+02	c	–	–	–	no
4,4-DDE	0	/	21	0	–		0.0067	–	4.90E+02	c	–	–	–	no
4,4-DDT	0	/	21	0	–		0.0105	–	1.42E+02	n	–	–	–	no
delta-BHC	0	/	21	0	–		0.0079	–	8.30E+01	n	–	–	–	no
Dieldrin	0	/	21	0	–		0.0067	–	1.03E+01	c	–	–	–	no
Endosulfan I	0	/	21	0	–		0.0123	–	1.43E+03	n	–	–	–	no
Endosulfan II	0	/	21	0	–		0.0067	–	1.43E+03	n	–	–	–	no
Endosulfan sulfate	0	/	21	0	–		0.0579	–	1.43E+03	n	–	–	–	no
Endrin	0	/	21	0	–		0.0067	–	7.15E+01	n	–	–	–	no
Endrin aldehyde	0	/	6	0	–		0.0067	–	7.15E+01	n	–	–	–	no
gamma-BHC	0	/	21	0	–		0.0035	–	8.30E+01	n	–	–	–	no
Heptachlor	0	/	21	0	–		0.0034	–	3.68E+01	c	–	–	–	no
Heptachlor epoxide	0	/	21	0	–		0.0727	–	3.10E+00	n	–	–	–	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	/	21	0	–		0.154	–	1.19E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)														
Total Petroleum Hydrocarbons (TPH)	2	/	15	13.3	999	!	39.2	–	NA	n	NA	–	–	no
Polychlorinated Biphenyls														
Aroclor 1221	0	/	21	0	–		0.207	–	7.13E+01	c	–	–	–	no
Aroclor 1232	0	/	21	0	–		0.207	–	7.13E+01	c	–	–	–	no
Aroclor 1242	0	/	21	0	–		0.207	–	7.58E+01	c	–	–	–	no
Aroclor 1254	0	/	21	0	–		0.207	–	4.36E+00	n	–	–	–	no
Aroclor 1260	0	/	21	0	–		0.207	–	7.58E+01	c	–	–	–	no
Aroclor-1016	0	/	21	0	–		0.207	–	1.53E+01	n	–	–	–	no
Aroclor-1248	0	/	21	0	–		0.207	–	7.58E+01	c	–	–	–	no
Explosives														
2,6-Dinitrotoluene	0	/	21	0	–		0.43	–	2.39E+02	n	–	–	–	no
Inorganics														
Arsenic	9	/	20	45	17.5		55	no	6.54E+01	n	no	–	2.68E-01	no
Barium	12	/	20	60	144		110	YES	4.35E+03	n	no	–	3.31E-02	no
Cadmium	0	/	20	0	–		6.55	no	3.09E+02	n	–	–	–	no
Chromium	0	/	14	0	–		32.8	no	4.49E+02	n	–	–	–	no
Lead	5	/	20	25	20		27	no	8.00E+02	IEUBK	no	–	–	no
Mercury	2	/	20	10	0.0278		0.1	YES	6.36E+01	n	no	–	4.37E-04	no
Selenium	6	/	20	30	11.4		55	no	1.55E+03	n	no	–	7.36E-03	no
Silver	2	/	20	10	38.6		32.8	no	1.55E+03	n	no	–	2.49E-02	no
Total Maximum / Screening Level Ratios												NA	0.3	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												NA	0.3	

Target Organ Max/SL Ratios	
Kidney & Liver	0.03
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.3
Lungs	NA

Table E.7-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
						Gastrointestinal Tract and Forestomach			NA	
						Whole Body			0.007	
						Blood			NA	
						Nervous System			NA	
						Dental			NA	
						Red Blood Cells			NA	
						Glands			NA	
						Fetus			0.03	
						Immune System			NA	
						Development			NA	
						Reproduction			NA	
						Bone			NA	
						Not Available/ Not Reported			NA	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.7-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetaldehyde	0	/	26	0	–	no
Acetone	4	/	32	13	0.108	no
Acrolein	0	/	32	0	–	no
Acrylonitrile	0	/	32	0	–	no
Benzene	0	/	32	0	–	no
Bis(2-chloroethyl)ether	0	/	32	0	–	no
Bis(2-chloroisopropyl)ether	0	/	32	0	–	no
Bromodichloromethane	0	/	26	0	–	no
Bromomethane	0	/	32	0	–	no
2-Butanone	0	/	32	0	–	no
Carbon disulfide	0	/	32	0	–	no
Carbon tetrachloride	0	/	32	0	–	no
CFC-11	0	/	32	0	–	no
CFC-12	0	/	6	0	–	no
Chlorobenzene	0	/	32	0	–	no
Chloroethane	0	/	32	0	–	no
2-Chloroethyl vinyl ether	0	/	32	0	–	no
Chloroform	0	/	32	0	–	no
Chloromethane	0	/	32	0	–	no
2-Chlorophenol	0	/	32	0	–	no
Dibenzofuran	0	/	26	0	–	no
Dibromomethane	0	/	32	0	–	no
1,2-Dichlorobenzene	0	/	32	0	–	no
1,4-Dichlorobenzene	0	/	32	0	–	no
1,4 Dichloro-2-butene	0	/	32	0	–	no
1,1-Dichloroethane	0	/	32	0	–	no
1,2-Dichloroethane	0	/	32	0	–	no
1,1-Dichloroethylene	0	/	32	0	–	no
cis-1,2-Dichloroethene	0	/	26	0	–	no
trans-1,2-Dichloroethene	0	/	32	0	–	no
Dichloromethane	0	/	22	0	–	no
1,2-Dichloropropane	0	/	32	0	–	no
cis-1,3-Dichloropropene	0	/	32	0	–	no
trans-1,3-Dichloropropene	0	/	32	0	–	no
Ethyl methacrylate	0	/	32	0	–	no
Ethylbenzene	0	/	32	0	–	no
Iodomethane	0	/	32	0	–	no
m-Dichlorobenzene	0	/	32	0	–	no
Methyl n-butyl ketone	0	/	32	0	–	no
Methylbenzene	0	/	32	0	–	no
4-Methyl-2-pentanone(mibk)	0	/	32	0	–	no
Nitrobenzene	0	/	32	0	–	no
Styrene (monomer)	0	/	32	0	–	no
Tetrachloroethene	0	/	32	0	–	no
1,1,2,2-Tetrachloroethane	0	/	32	0	–	no
1,1,1-Trichloroethane	0	/	32	0	–	no
1,1,2-Trichloroethane	0	/	32	0	–	no
1,2,3-Trichloropropane	0	/	32	0	–	no
1,2,4-Trichlorobenzene	0	/	32	0	–	no
Trichloroethylene	0	/	32	0	–	no
Vinyl acetate	0	/	32	0	–	no
Vinyl chloride	0	/	32	0	–	no
Xylenes	0	/	32	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	32	0	–	no
Acenaphthylene	0	/	22	0	–	no
Anthracene	0	/	32	0	–	no
1-Chloronaphthalene	0	/	26	0	–	no
2-Chloronaphthalene	0	/	32	0	–	no
Fluorene	0	/	32	0	–	no
2-Methylnaphthalene	0	/	26	0	–	no
Naphthalene	0	/	32	0	–	no
Phenanthrene	0	/	32	0	–	no

Notes:
– = Not applicable.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway. Lab contaminants were not retained as COPCs for the vapor inhalation pathway if they are the only detected VOCs in soil.

Table E.7-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds												
Acetone	0	/	11	0	–	0.01		2.20E+02	n	–	–	–
Acetophenone	0	/	9	0	–	5		8.00E+02	n	–	–	–
Acrylonitrile	0	/	11	0	–	0.001		8.50E-02	c	–	–	–
Benzene	0	/	11	0	–	0.001		1.40E-02	c	–	–	–
Bis(2-chloroethyl)ether	0	/	9	0	–	5	^	1.00E-01	c	–	–	–
Bis(2-chloroisopropyl)ether	0	/	9	0	–	5		NA	c	–	–	–
Bromobenzene	0	/	11	0	–	0.001		NA	n	–	–	–
Bromodichloromethane	0	/	11	0	–	0.001		2.10E-02	c	–	–	–
Bromomethane	0	/	11	0	–	0.005		2.00E-02	n	–	–	–
2-Butanone	0	/	11	0	–	0.005		4.40E+02	n	–	–	–
tert-Butyl alcohol	0	/	2	0	–	0.005		NA	n	–	–	–
n-Butylbenzene	0	/	11	0	–	0.001		2.60E-01	n	–	–	–
sec-Butylbenzene	0	/	11	0	–	0.001		2.50E-01	n	–	–	–
tert-Butylbenzene	0	/	11	0	–	0.001		2.90E-01	n	–	–	–
Carbon disulfide	0	/	11	0	–	0.001		5.60E-01	n	–	–	–
Carbon tetrachloride	0	/	11	0	–	0.001		5.00E-03	c	–	–	–
CFC-11	2	/	11	18.2	0.00117	0.001		1.80E-01	n	no	–	6.50E-03
CFC-12	0	/	11	0	–	0.001		1.40E-02	n	–	–	–
Chlorobenzene	0	/	11	0	–	0.001		3.90E-01	n	–	–	–
Chlorobromomethane	0	/	11	0	–	0.001		NA	n	–	–	–
Chloroethane	0	/	11	0	–	0.001		2.80E+01	n	–	–	–
2-Chloroethyl vinyl ether	0	/	11	0	–	0.005		NA	n	–	–	–
Chloroform	11	/	11	100	0.00361	–		8.00E-02	c	no	4.51E-02	–
Chloromethane	0	/	11	0	–	0.001		6.70E-02	c	–	–	–
2-Chlorophenol	0	/	9	0	–	5	^	1.10E+00	n	–	–	–
2-Chlorotoluene	0	/	11	0	–	0.001		NA	n	–	–	–
4-Chlorotoluene	0	/	11	0	–	0.001		NA	n	–	–	–
Cymene	0	/	11	0	–	0.001		NA	n	–	–	–
Dibenzofuran	0	/	9	0	–	5		NA	n	–	–	–
1,2-Dibromoethane	0	/	11	0	–	0.001		3.60E-03	c	–	–	–
Dibromomethane	0	/	11	0	–	0.001		9.90E-01	n	–	–	–
1,2-Dichlorobenzene	0	/	11	0	–	5	^	2.60E+00	n	–	–	–
1,4-Dichlorobenzene	0	/	11	0	–	5		8.20E+00	c	–	–	–
trans-1,4-Dichlorobutene	0	/	11	0	–	0.01		NA	c	–	–	–
1,1-Dichloroethane	0	/	11	0	–	0.001		2.20E+00	c	–	–	–
1,2-Dichloroethane	0	/	11	0	–	0.001		2.30E-02	c	–	–	–
1,1-Dichloroethylene	11	/	11	100	0.00609	–		1.90E-01	n	no	–	3.21E-02
cis-1,2-Dichloroethene	0	/	11	0	–	0.001		2.10E-01	n	–	–	–
trans-1,2-Dichloroethene	0	/	11	0	–	0.001		1.80E-01	n	–	–	–
Dichloromethane	0	/	11	0	–	0.005		5.80E-01	c	–	–	–
1,2-Dichloropropane	0	/	11	0	–	0.001		3.50E-02	c	–	–	–
1,3-Dichloropropane	0	/	11	0	–	0.001		NA	n	–	–	–

Table E.7-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)		Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
2,2-Dichloropropane	0	/	11	0	–		0.001		NA	n	–	–	–
1,1-Dichloropropene	0	/	11	0	–		0.001		NA	c	–	–	–
cis-1,3-Dichloropropene	0	/	11	0	–		0.001		NA	c	–	–	–
trans-1,3-Dichloropropene	0	/	11	0	–		0.001		NA	c	–	–	–
Ethylbenzene	0	/	11	0	–		0.001		7.00E-01	c	–	–	–
Iodomethane	0	/	11	0	–		0.005		NA	n	–	–	–
Isopropylbenzene	0	/	11	0	–		0.001		8.40E-03	n	–	–	–
m-Dichlorobenzene	0	/	11	0	–		5	^	8.30E-01	n	–	–	–
Methyl n-butyl ketone	0	/	11	0	–		0.005		NA	n	–	–	–
Methylbenzene	0	/	11	0	–		0.001		1.50E+00	n	–	–	–
4-Methyl-2-pentanone(mibk)	0	/	11	0	–		0.005		1.40E+01	n	–	–	–
MTBE	0	/	11	0	–		0.001		1.20E+02	c	–	–	–
Nitrobenzene	0	/	9	0	–		5	^	2.00E+00	c	–	–	–
n-Propylbenzene	0	/	11	0	–		0.001		3.20E-01	n	–	–	–
Styrene (monomer)	0	/	11	0	–		0.001		8.90E+00	n	–	–	–
Tetrachloroethene	0	/	11	0	–		0.001		1.10E-02	c	–	–	–
1,1,1,2-Tetrachloroethane	0	/	11	0	–		0.001		3.30E-02	c	–	–	–
1,1,2,2-Tetrachloroethane	0	/	11	0	–		0.001		3.00E-02	c	–	–	–
1,1,1-Trichloroethane	0	/	11	0	–		0.001		3.10E+00	n	–	–	–
1,1,2-Trichloroethane	0	/	11	0	–		0.001		4.10E-02	c	–	–	–
1,2,3-Trichlorobenzene	0	/	11	0	–		0.005		NA	n	–	–	–
1,2,3-Trichloropropane	0	/	11	0	–		0.001		2.90E-01	c	–	–	–
1,2,4-Trichlorobenzene	0	/	11	0	–		0.005		3.40E+00	n	–	–	–
1,2,4-Trimethylbenzene	0	/	11	0	–		0.001		2.40E-02	n	–	–	–
1,3,5-Trimethylbenzene	0	/	11	0	–		0.001		2.50E-02	n	–	–	–
Trichloroethylene	11	/	11	100	0.00906		–		5.00E-03	c	YES	1.81E+00	–
Vinyl chloride	0	/	11	0	–		0.001		2.50E-03	c	–	–	–
m,p-Xylene	0	/	11	0	–		0.001		2.30E+01	n	–	–	–
o-Xylene	0	/	11	0	–		0.001		3.30E+01	n	–	–	–
Semi Volatile Organic Compounds													
n-Nitrosodi-n-butylamine	0	/	9	0	–		5	^	1.20E-03	c	–	–	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	9	0	–		5		NA	n	–	–	–
Acenaphthylene	0	/	9	0	–		5		NA	n	–	–	–
Anthracene	1	/	9	11.1	0.00008	!	5		NA	n	NA	–	–
1-Chloronaphthalene	0	/	9	0	–		5		NA	n	–	–	–
2-Chloronaphthalene	0	/	9	0	–		5		NA	n	–	–	–
Fluorene	0	/	9	0	–		5		NA	n	–	–	–
1-Methylnaphthalene	0	/	9	0	–		5		NA	c	–	–	–
2-Methylnaphthalene	0	/	9	0	–		5	^	3.30E+00	n	–	–	–
Naphthalene	0	/	11	0	–		0.005		1.50E-01	c	–	–	–
Phenanthrene	1	/	9	11.1	0.00009	!	5		NA	n	NA	–	–

Table E.7-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios							2	0.04
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)							2.E-05	0.04
						Target Organ Max/SL Ratios		
						Kidney & Liver		0.03
						Brain		NA
						Nasal		NA
						Eyes		NA
						Skin		NA
						Lungs		0.007
						Gastrointestinal Tract and Forestomach		NA
						Whole Body		0.007
						Blood		NA
						Nervous System		NA
						Dental		NA
						Red Blood Cells		NA
						Glands		NA
						Fetus		NA
						Immune System		NA
						Development		NA
						Reproduction		NA
						Bone		NA
						Not Available/ Not Reported		NA

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

Table E.7-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	11	0	–		2.20E+02	n	–	–	–	no
Acetophenone	0	/	9	0	–		8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	11	0	–		8.50E-02	c	–	–	–	no
Benzene	0	/	11	0	–		1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	9	0	–		1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	9	0	–		NA	c	–	–	–	no
Bromobenzene	0	/	11	0	–		NA	n	–	–	–	no
Bromodichloromethane	0	/	11	0	–		2.10E-02	c	–	–	–	no
Bromomethane	0	/	11	0	–		2.00E-02	n	–	–	–	no
2-Butanone	0	/	11	0	–		4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	2	0	–		NA	n	–	–	–	no
n-Butylbenzene	0	/	11	0	–		2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	11	0	–		2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	11	0	–		2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	11	0	–		5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	11	0	–		5.00E-03	c	–	–	–	no
CFC-11	2	/	11	18.2	0.00117	m	1.80E-01	n	no	–	6.50E-03	no
CFC-12	0	/	11	0	–		1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	11	0	–		3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	11	0	–		NA	n	–	–	–	no
Chloroethane	0	/	11	0	–		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	11	0	–		NA	n	–	–	–	no
Chloroform	11	/	11	100	0.00216		8.00E-02	c	no	2.70E-02	–	no
Chloromethane	0	/	11	0	–		6.70E-02	c	–	–	–	no
2-Chlorophenol	0	/	9	0	–		1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	11	0	–		NA	n	–	–	–	no
4-Chlorotoluene	0	/	11	0	–		NA	n	–	–	–	no
Cymene	0	/	11	0	–		NA	n	–	–	–	no
Dibenzofuran	0	/	9	0	–		NA	n	–	–	–	no
1,2-Dibromoethane	0	/	11	0	–		3.60E-03	c	–	–	–	no
Dibromomethane	0	/	11	0	–		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	11	0	–		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	11	0	–		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	11	0	–		NA	c	–	–	–	no
1,1-Dichloroethane	0	/	11	0	–		2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0	/	11	0	–		2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	11	/	11	100	0.00524		1.90E-01	n	no	–	2.76E-02	no
cis-1,2-Dichloroethene	0	/	11	0	–		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	11	0	–		1.80E-01	n	–	–	–	no
Dichloromethane	0	/	11	0	–		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	11	0	–		3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	11	0	–		NA	n	–	–	–	no

Table E.7-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
2,2-Dichloropropane	0	11	0	–		NA	n	–	–	–	no
1,1-Dichloropropene	0	11	0	–		NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	11	0	–		NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	11	0	–		NA	c	–	–	–	no
Ethylbenzene	0	11	0	–		7.00E-01	c	–	–	–	no
Iodomethane	0	11	0	–		NA	n	–	–	–	no
Isopropylbenzene	0	11	0	–		8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	11	0	–		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	11	0	–		NA	n	–	–	–	no
Methylbenzene	0	11	0	–		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone(mibk)	0	11	0	–		1.40E+01	n	–	–	–	no
MTBE	0	11	0	–		1.20E+02	c	–	–	–	no
Nitrobenzene	0	9	0	–		2.00E+00	c	–	–	–	no
n-Propylbenzene	0	11	0	–		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	11	0	–		8.90E+00	n	–	–	–	no
Tetrachloroethene	0	11	0	–		1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	11	0	–		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	11	0	–		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	11	0	–		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	11	0	–		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	11	0	–		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	11	0	–		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	11	0	–		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	11	0	–		2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	11	0	–		2.50E-02	n	–	–	–	no
Trichloroethylene	11	11	100	0.00696		5.00E-03	c	YES	1.39E+00	–	no
Vinyl chloride	0	11	0	–		2.50E-03	c	–	–	–	no
m,p-Xylene	0	11	0	–		2.30E+01	n	–	–	–	no
o-Xylene	0	11	0	–		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds											
n-Nitrosodi-n-butylamine	0	9	0	–		1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	0	9	0	–		NA	n	–	–	–	no
Acenaphthylene	0	9	0	–		NA	n	–	–	–	no
Anthracene	1	9	11.1	0.00008	m	NA	n	NA	–	–	no
1-Chloronaphthalene	0	9	0	–		NA	n	–	–	–	no
2-Chloronaphthalene	0	9	0	–		NA	n	–	–	–	no
Fluorene	0	9	0	–		NA	n	–	–	–	no
1-Methylnaphthalene	0	9	0	–		NA	c	–	–	–	no
2-Methylnaphthalene	0	9	0	–		3.30E+00	n	–	–	–	no
Naphthalene	0	11	0	–		1.50E-01	c	–	–	–	no
Phenanthrene	1	9	11.1	0.00009	m	NA	n	NA	–	–	no

Table E.7-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 38-39 (SWMU 38-39)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Total Maximum / Screening Level Ratios						1	0.03	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)						1.E-05	0.03	
					Target Organ Max/SL Ratios			
					Kidney & Liver		0.03	
					Brain		NA	
					Nasal		NA	
					Eyes		NA	
					Skin		NA	
					Lungs		0.007	
					Gastrointestinal Tract and Forestomach		NA	
					Whole Body		0.007	
					Blood		NA	
					Nervous System		NA	
					Dental		NA	
					Red Blood Cells		NA	
					Glands		NA	
					Fetus		NA	
					Immune System		NA	
					Development		NA	
					Reproduction		NA	
					Bone		NA	
					Not Available/ Not Reported		NA	

Notes:

– = Not applicable.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.

[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.7.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	6	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	6	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	6	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	6	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	6	0	–	0.33		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	6	0	–	0.33		no	NA		NA	no	ND
Bromomethane	0	/	6	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	6	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	6	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	6	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	6	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	6	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	6	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	6	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	6	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	6	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	6	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	6	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	6	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	6	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	6	0	–	0.33		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	6	0	–	0.33		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	6	0	–	0.33		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	6	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	6	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	6	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	6	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	6	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	6	0	–	0.005		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	6	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	6	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	6	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	6	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	6	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	6	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	6	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	6	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	6	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	6	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	6	0	–	0.33		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	6	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	6	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	6	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	6	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	6	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	6	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	6	0	–	0.33		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	6	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	6	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	6	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	6	0	–	0.005		no	0.05	*R4*	NA	no	ND

Table E.7.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Semi Volatile Organic Compounds													
Benzidine	0	/	6	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	6	0	–	1.7		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	6	0	–	0.33	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	6	0	–	0.33	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	6	0	–	0.33		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	6	0	–	0.66		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	6	0	–	0.33		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	6	0	–	0.66	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	6	0	–	0.33		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	6	0	–	0.33		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	6	0	–	0.33	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	6	0	–	1.7		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	6	0	–	0.33		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	6	0	–	0.33		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	6	0	–	0.33		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	6	0	–	0.33		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	6	0	–	0.33	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	6	0	–	0.33	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	6	0	–	0.33		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	6	0	–	0.33		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	6	0	–	0.33	^	no	0.0000321	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	6	0	–	1.7	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	6	0	–	0.33		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	6	0	–	1.7		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	6	0	–	0.33		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	6	0	–	0.33		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	6	0	–	1.7		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	6	0	–	0.33		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	6	0	–	0.33		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	6	0	–	0.33		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	6	0	–	0.33		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	6	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	6	0	–	0.33		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	6	0	–	0.33	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	6	0	–	0.33		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	6	0	–	0.33		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	6	0	–	0.33		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	6	0	–	0.33	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	6	0	–	0.33		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	6	0	–	0.33		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	6	0	–	0.33		no	109	*R5*	NA	no	ND
Naphthalene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND

Table E.7.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Pesticides													
Aldrin	0	/	6	0	–	0.0034	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	6	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	6	0	–	0.0034		no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	6	0	–	0.067		no	0.119	*R5*	NA	no	ND
Chlordane	0	/	6	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	6	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	6	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	6	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	6	0	–	0.0034		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	6	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	6	0	–	0.0034		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	6	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	6	0	–	0.0067	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	6	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	6	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	6	0	–	0.0034		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	6	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	6	0	–	0.0034		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxpher	0	/	6	0	–	0.034	^	no	0.0199	*R5*	NA	no	ND
Polychlorinated Biphenyls													
Aroclor 1221	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1016	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1248	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	6	0	–	0.33	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	0	/	6	0	–	55	^	no	18	*EcoSSL*	NA	no	ND
Barium	1	/	6	16.7	81	110		YES	330	*EcoSSL*	0.2	no	≤ BKGD
Cadmium	0	/	6	0	–	2.7	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	1	/	6	16.7	20	27		no	11	*EcoSSL*	2	**YES**	HQ > 1
Mercury	0	/	6	0	–	0.1		YES	0.1	*R4*	NA	no	ND
Selenium	0	/	6	0	–	55	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	6	0	–	5.5	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.7.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds											
Acetaldehyde	0 / 15	0	–	0.0201		no	NA		NA	no	ND
Acetone	1 / 21	4.76	0.0342	0.1		no	2.5	*R5*	0.01	no	HQ ≤ 1
Acrolein	0 / 21	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0 / 21	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0 / 21	0	–	0.0065		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0 / 21	0	–	0.43		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0 / 21	0	–	0.43		no	NA		NA	no	ND
Bromodichloromethane	0 / 15	0	–	0.0065		no	0.54	*R5*	NA	no	ND
Bromomethane	0 / 21	0	–	0.013		no	0.235	*R5*	NA	no	ND
2-Butanone	0 / 21	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0 / 21	0	–	0.0065		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0 / 21	0	–	0.0065		no	1,000	*R4*	NA	no	ND
CFC-11	0 / 21	0	–	0.0128		no	16.4	*R5*	NA	no	ND
CFC-12	0 / 6	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0 / 21	0	–	0.0065		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0 / 21	0	–	0.0065		no	2.05	*R5*	NA	no	ND
Chloroethane	0 / 21	0	–	0.013		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0 / 21	0	–	0.013		no	NA		NA	no	ND
Chloroform	0 / 21	0	–	0.0065	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0 / 21	0	–	0.013		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0 / 21	0	–	0.43	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0 / 15	0	–	0.43		no	600	*R4s*	NA	no	ND
Dibromomethane	0 / 21	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0 / 21	0	–	0.33		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0 / 21	0	–	0.33		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0 / 21	0	–	0.33		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0 / 21	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0 / 21	0	–	0.0065		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0 / 21	0	–	0.0065		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0 / 21	0	–	0.0065		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0 / 15	0	–	0.0065		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0 / 21	0	–	0.0065		no	0.784	*R5*	NA	no	ND
Dichloromethane	0 / 21	0	–	0.0065		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0 / 21	0	–	0.0065		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0 / 21	0	–	0.0065		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0 / 21	0	–	0.0065		no	0.398	*R5*	NA	no	ND
Ethanol	0 / 6	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0 / 21	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0 / 21	0	–	0.0065		no	0.05	*R4*	NA	no	ND
Iodomethane	0 / 21	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0 / 21	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0 / 21	0	–	0.0065		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0 / 21	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0 / 21	0	–	0.43		no	40	*R4*	NA	no	ND
Styrene (monomer)	0 / 21	0	–	0.0065		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0 / 21	0	–	0.0065		no	9.92	*R5*	NA	no	ND

Table E.7.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,1,2,2-Tetrachloroethane	0	/	21	0	–	0.0065		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	21	0	–	0.0065		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	21	0	–	0.0065		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	21	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	21	0	–	0.43		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	21	0	–	0.0065	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	21	0	–	0.026		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	21	0	–	0.013	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	21	0	–	0.0065		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	21	0	–	2.08		no	NA		NA	no	ND
Benzoic acid	0	/	21	0	–	2.08		no	NA		NA	no	ND
Benzyl alcohol	0	/	15	0	–	0.43		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	21	0	–	0.43	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	21	0	–	0.43	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	1	/	21	4.76	0.438	0.43		no	0.1	*R4*	4	**YES**	HQ > 1
4-Bromophenyl phenyl ether	0	/	21	0	–	0.43		no	NA		NA	no	ND
p-Chloroaniline	0	/	15	0	–	0.424		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	21	0	–	0.66		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	21	0	–	0.43		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	21	0	–	0.66	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	21	0	–	0.43		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	21	0	–	0.43		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	21	0	–	0.43	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	21	0	–	2.08		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	21	0	–	0.43		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/	15	0	–	2.08		no	NA		NA	no	ND
Dimethyl phthalate	0	/	21	0	–	0.43		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	21	0	–	0.43		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	21	0	–	0.43		no	709	*R5*	NA	no	ND
Diphenylamine	0	/	15	0	–	1.3	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	21	0	–	0.43	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	21	0	–	0.43	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	21	0	–	0.43		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	21	0	–	0.43		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	6	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	21	0	–	2.08	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	15	0	–	0.43		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	15	0	–	0.43		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	15	0	–	2.08		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	15	0	–	2.08		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	15	0	–	2.08		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	21	0	–	0.43		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	21	0	–	2.08		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	21	0	–	0.43		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	21	0	–	0.43		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	21	0	–	2.08		no	2.1	*EcoSSL*	NA	no	ND

Table E.7.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Phenol	0	/	21	0	–	0.43		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	15	0	–	0.0066		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	15	0	–	0.43		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	21	0	–	0.43		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	21	0	–	0.43		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	21	0	–	0.43		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	21	0	–	0.43		no	682	*R5*	NA	no	ND
Anthracene	0	/	21	0	–	0.43	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	21	0	–	0.43		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	21	0	–	0.43	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	21	0	–	0.43	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	21	0	–	0.43		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	21	0	–	0.43		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	21	0	–	0.43		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	15	0	–	0.43	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	21	0	–	0.43	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	21	0	–	0.43		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	21	0	–	0.43	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	21	0	–	0.43		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	21	0	–	0.43		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	15	0	–	0.43		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	21	0	–	0.43	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	21	0	–	0.43	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	21	0	–	0.43	^	no	0.1	*R4*	NA	no	ND
Pesticides													
Aldrin	0	/	21	0	–	0.0035	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	21	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	21	0	–	0.0053	^	no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	21	0	–	0.21	^	no	0.119	*R5*	NA	no	ND
Chlordane	0	/	21	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	21	0	–	0.0096		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	21	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	21	0	–	0.0105		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	21	0	–	0.0079		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	21	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	21	0	–	0.0123		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	21	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	21	0	–	0.0579	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	21	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	6	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	21	0	–	0.0035		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	21	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	21	0	–	0.0727		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-et	0	/	21	0	–	0.154	^	no	0.0199	*R5*	NA	no	ND

Table E.7.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	2	/	15	13.3	999	39.2		no	10,000	*API*	0.1	no	HQ ≤ 1
Polychlorinated Biphenyls													
Aroclor 1221	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Aroclor-1016	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Aroclor-1248	0	/	21	0	–	0.207	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	21	0	–	0.43	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	9	/	20	45	17.5	55		no	18	*EcoSSL*	1	no	HQ ≤ 1
Barium	12	/	20	60	144	110		YES	330	*EcoSSL*	0.4	no	≤ BKGD
Cadmium	0	/	20	0	–	6.55	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	0	/	14	0	–	32.8	^	no	26	*EcoSSL*	NA	no	ND
Lead	5	/	20	25	20	27		no	11	*EcoSSL*	2	**YES**	HQ > 1
Mercury	2	/	20	10	0.0278	0.1		YES	0.1	*R4*	0.3	no	≤ BKGD
Selenium	6	/	20	30	11.4	55		no	0.52	*EcoSSL*	20	**YES**	HQ > 1
Silver	2	/	20	10	38.6	32.8		no	4.2	*EcoSSL*	9	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.7.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Lead	20	m	11	*EcoSSL*	2	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.7.ERA-4
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Semi Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	0.438	m	0.1	*R4*	4	**YES**	**HQ > 1**	no
Inorganics								
Lead	6.899		11	*EcoSSL*	0.6	no	HQ ≤ 1	YES
Selenium	6.291		0.52	*EcoSSL*	10	**YES**	**HQ > 1**	YES
Silver	38.6	m	4.2	*EcoSSL*	9	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.7.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]					
	BERA COPEC?		0-2 ft bgs			0-10 ft bgs		
	0-2 ft bgs	0-10 ft bgs	Maximum		Refined	Maximum		Refined
Constituent			**Scenario**		**Scenario**	**Scenario**		**Scenario**
Semi Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	no	YES	NA		NA	0.438	m	0.203
Inorganics								
Lead	YES	no	20	m	14.1	NA		NA
Selenium	no	YES	NA		NA	6.291		9.57
Silver	no	YES	NA		NA	38.6	m	13.5

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
ft bgs = Feet below ground surface.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.7.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	20	m	1.42E+00	1.71E-01	0.16	47	4.7	0.003	0.03

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	14.1	9.56E-01	1.17E+00	1.60E-01	1.40E-01	0.12	47	4.7	0.003	0.03

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentratio
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	20	m	1.27E+00	2.12E-01	0.34	47	4.7	0.007	0.07

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculat EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	stimated Dietary Tissu Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Lead	14.1	9.56E-01	1.60E-01	0.25	47	4.7	0.005	0.05

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentrati
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	20	m	4.06E+00	1.30E+00	0.16	47	4.7	0.003	0.03

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Lead	14.1	9.56E-01	1.17E+00	3.48E+00	1.60E-01	1.40E-01	1.11E+00	0.00023	47	4.7	0.000005	0.00005

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Selenium	6.291		1.32E+00	4.22E-01	0.053	1.4	0.14	0.04	0.4
Silver	38.6	m	1.28E-03	4.94E-02	0.044	6	0.6	0.007	0.07

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics													
Selenium	6.291	[g]	4.86E+00	6.15E+00	1.54E+00	8.11E-01	7.38E-01	4.94E-01	0.0001	1.4	0.14	0.00007	0.0007
Silver	13.5		3.42E-01	1.68E-03	1.28E-03	4.61E+00	2.27E-02	1.73E-02	0.000037	6	0.6	0.000006	0.00006

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.
[g] The exposure point concentrations (EPCs) for selenium was set as the upper confidence level on the mean (UCL) used in the maximum scenario because it was lower than the arithmetic average typically used for the refined scenario.

Table E.7.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	20	m	1.42E+00	1.71E-01	0.21	16.3	1.63	0.01	0.1

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	14.1	9.56E-01	1.17E+00	1.60E-01	1.40E-01	0.0013	16.3	1.63	0.00008	0.0008

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentratic EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissu Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	20	m	1.27E+00	2.12E-01	0.57	16.3	1.63	0.03	0.3

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculab EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	14.1	9.56E-01	1.17E+00	1.60E-01	1.40E-01	0.41	16.3	1.63	0.03	0.3

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	20	m	4.06E+00	1.30E+00	0.34	16.3	1.63	0.02	0.2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculat EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Lead	14.1	3.48E+00	1.11E+00	0.0006	16.3	1.63	0.00004	0.0004

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentratio
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.7.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil			BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection		EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples		(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics																		
Lead	1	- 6	14.1	2	EcoSSL	avi	0.003	0.03	0.005	0.05	0.000005	0.00005	0.00008	0.0008	0.03	0.3	0.00004	0.0004

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.7.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil					BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC		Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)		[a]	Source	Basis	LOAEL	NOAEL
Inorganics										
Selenium	6	-	20	6.291	[d]	10	EcoSSL	veg	0.00007	0.0007
Silver	2	-	20	13.5		9	EcoSSL	avi	0.000006	0.00006

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.
[d] The exposure point concentrations (EPCs) for selenium was set as the upper confidence level on the mean (UCL) used in the maximum scenario because it was lower than the arithmetic average typically used for the refined scenario.

Table E.8.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	11	0	–	-	–	0.0224	-	0.1	–	0.0154	–
Acrolein	0	-	11	0	–	-	–	0.00561	-	0.2	–	0.0118	–
Acrylonitrile	0	-	11	0	–	-	–	0.0112	-	0.1	–	0.00995	–
Benzene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Bis(2-chloroethyl)ether	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Bis(2-chloroisopropyl)ether	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Bromodichloromethane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Bromomethane	0	-	11	0	–	-	–	0.005	-	0.0125	–	0.00564	–
2-Butanone	0	-	11	0	–	-	–	0.0224	-	0.1	–	0.0154	–
Carbon disulfide	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Carbon tetrachloride	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
CFC-11	0	-	11	0	–	-	–	0.00577	-	0.0125	–	0.0056	–
CFC-12	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Chlorodibromomethane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Chloroethane	0	-	11	0	–	-	–	0.01	-	0.0125	–	0.00586	–
2-Chloroethyl vinyl ether	0	-	11	0	–	-	–	0.01	-	0.0125	–	0.00586	–
Chloroform	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Chloromethane	0	-	11	0	–	-	–	0.01	-	0.0125	–	0.00586	–
2-Chlorophenol	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Dibenzofuran	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Dibromomethane	0	-	11	0	–	-	–	0.00561	-	0.02	–	0.00361	–
1,2-Dichlorobenzene	0	-	11	0	–	-	–	0.00561	-	0.3	–	0.0163	–
1,4-Dichlorobenzene	0	-	11	0	–	-	–	0.00561	-	0.3	–	0.0163	–
1,4 Dichloro-2-butene	0	-	11	0	–	-	–	0.0112	-	0.02	–	0.00632	–
1,1-Dichloroethane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
1,2-Dichloroethane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
1,1-Dichloroethylene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
cis-1,2-Dichloroethene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
trans-1,2-Dichloroethene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Dichloromethane	1	-	10	10	0.00846	-	0.00846	0.005	-	0.00623	SWMU 148 SB-06(11/29/1993)	0.0035	–
1,2-Dichloropropane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
cis-1,3-Dichloropropene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
trans-1,3-Dichloropropene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Ethanol	0	-	1	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	11	0	–	-	–	0.00561	-	0.02	–	0.00361	–

Table E.8.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethylbenzene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Iodomethane	0	-	11	0	–	-	–	0.0112	-	0.02	–	0.00632	–
m-Dichlorobenzene	0	-	11	0	–	-	–	0.00561	-	0.3	–	0.0163	–
Methyl n-butyl ketone	0	-	11	0	–	-	–	0.0224	-	0.05	–	0.0131	–
Methylbenzene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
4-Methyl-2-pentanone (MIBK)	0	-	11	0	–	-	–	0.0224	-	0.05	–	0.0131	–
Nitrobenzene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Styrene (monomer)	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Tetrachloroethene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
1,1,2,2-Tetrachloroethane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
1,1,1-Trichloroethane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
1,1,2-Trichloroethane	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
1,2,3-Trichloropropane	0	-	11	0	–	-	–	0.00561	-	0.02	–	0.00361	–
1,2,4-Trichlorobenzene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Trichloroethylene	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Vinyl acetate	0	-	11	0	–	-	–	0.01	-	0.0249	–	0.0113	–
Vinyl chloride	0	-	11	0	–	-	–	0.01	-	0.0125	–	0.00586	–
Xylenes	0	-	11	0	–	-	–	0.005	-	0.00623	–	0.00293	–
Semi Volatile Organic Compounds													
Benzidine	0	-	11	0	–	-	–	1.7	-	1.99	–	0.942	–
Benzoic acid	0	-	11	0	–	-	–	1.79	-	2	–	0.956	–
Benzyl alcohol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Benzyl butyl phthalate	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Bis(2-chloroethoxy)methane	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Bis(2-ethylhexyl)phthalate	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
4-Bromophenyl phenyl ether	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
p-Chloroaniline	0	-	10	0	–	-	–	0.00577	-	0.411	–	0.178	–
4-Chloro-3-methylphenol	0	-	11	0	–	-	–	0.37	-	0.7	–	0.21	–
4-Chlorophenyl phenyl ether	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
3,3'-Dichlorobenzidine	0	-	11	0	–	-	–	0.37	-	0.7	–	0.21	–
2,4-Dichlorophenol	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Diethyl phthalate	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
2,4-Dimethylphenol	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
2,4-Dinitrophenol	0	-	11	0	–	-	–	1.79	-	2	–	0.956	–
2,4-Dinitrotoluene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
1,2-Diphenylhydrazine	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
Dimethyl phthalate	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Di-n-butyl phthalate	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–

Table E.8.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Di-n-octyl phthalate	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Diphenylamine	0	-	10	0	–	-	–	1.12	-	1.24	–	0.594	–
Hexachloro-1,3-butadiene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Hexachlorobenzene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Hexachlorocyclopentadiene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Hexachloroethane	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	11	0	–	-	–	1.79	-	2	–	0.956	–
2-Methylphenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
4-Methylphenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2-Nitroaniline	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
3-Nitroaniline	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
p-Nitroaniline	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
2-Nitrophenol	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
4-Nitrophenol	0	-	11	0	–	-	–	1.79	-	2	–	0.956	–
n-Nitrosodi-n-propylamine	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
n-Nitrosodiphenylamine	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Pentachlorophenol	0	-	11	0	–	-	–	1.79	-	2	–	0.956	–
Phenol	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Tribromomethane	0	-	10	0	–	-	–	0.00561	-	0.00846	–	0.00311	–
2,4,5-Trichlorophenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2,4,6-Trichlorophenol	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Acenaphthylene	0	-	10	0	–	-	–	0.3	-	0.411	–	0.193	–
Anthracene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Benzo(a)anthracene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Benzo(a)pyrene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Benzo(b)fluoranthene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Benzo(g,h,i)perylene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Benzo(k)fluoranthene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
1,2-Benzphenanthracene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
1-Chloronaphthalene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2-Chloronaphthalene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Dibenz(a,h)anthracene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Fluoranthene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Fluorene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–

Table E.8.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Indeno(1,2,3-cd)pyrene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
2-Methylnaphthalene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Naphthalene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Phenanthrene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Pyrene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–
Pesticides													
Aldrin	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
alpha-BHC	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
beta-BHC	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Camphechlor	0	-	1	0	–	-	–	0.067	-	0.067	–	0.0335	–
Chlordane	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
4,4-DDD	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDE	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDT	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
delta-BHC	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Dieldrin	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan I	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Endosulfan II	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan sulfate	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin aldehyde	0	-	1	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor epoxide	0	-	1	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	1	0	–	-	–	10	-	10	–	5	–
Total Petroleum Hydrocarbons (TPH)	0	-	11	0	–	-	–	10	-	37.3	–	16.8	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1232	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1242	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1254	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1260	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1016	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1248	0	-	1	0	–	-	–	0.034	-	0.034	–	0.017	–
Explosives													
2,6-Dinitrotoluene	0	-	11	0	–	-	–	0.3	-	0.411	–	0.192	–

Table E.8.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Inorganics													
Arsenic	7	-	11	63.6	0.54	-	8.56	2.96	-	3.12	HMW-43(11/17/1993)	3.07	4.641
Barium	10	-	11	90.9	47.4	-	112	92	-	92	SWMU 148 SB-06(11/29/1993)	82.5	95.81
Cadmium	0	-	11	0	–	-	–	1.12	-	6.23	–	2.35	–
Chromium	1	-	13	7.69	6.4	-	6.4	5.97	-	31.2	HMW-43(11/17/1993)	10.8	–
Chromium (Hexavalent)	0	-	12	0	–	-	–	1.08	-	1.25	–	0.6	–
Lead	9	-	11	81.8	3.65	-	8.17	2.8	-	23	SWMU 148 SB-01(11/29/1993)	5.76	6.296
Mercury	2	-	11	18.2	0.0258	-	0.0474	0.0233	-	0.1	SWMU 148 SB-07(11/29/1993)	0.02	–
Selenium	0	-	11	0	–	-	–	0.5	-	3.12	–	1.39	–
Silver	4	-	11	36.4	10.8	-	72.4	4.6	-	31.2	SWMU 148 SB-08(11/29/1993)	24	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.8.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	6	-	46	13	0.0374	-	0.72	0.0224	-	0.1	141B7(5/1/1992)	0.0578	0.102
Acrolein	0	-	46	0	–	-	–	0.00561	-	0.2	–	0.0369	–
Acrylonitrile	0	-	46	0	–	-	–	0.0112	-	0.1	–	0.0217	–
Benzene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Bis(2-chloroethyl)ether	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Bis(2-chloroisopropyl)ether	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Bromodichloromethane	0	-	30	0	–	-	–	0.00561	-	0.0113	–	0.00331	–
Bromomethane	0	-	46	0	–	-	–	0.005	-	0.0226	–	0.00519	–
2-Butanone	0	-	46	0	–	-	–	0.0224	-	0.1	–	0.026	–
Carbon disulfide	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Carbon tetrachloride	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
CFC-11	0	-	46	0	–	-	–	0.00577	-	0.0226	–	0.00586	–
CFC-12	0	-	16	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Chlorodibromomethane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Chloroethane	0	-	46	0	–	-	–	0.01	-	0.0226	–	0.00606	–
2-Chloroethyl vinyl ether	0	-	46	0	–	-	–	0.01	-	0.0226	–	0.00606	–
Chloroform	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Chloromethane	0	-	46	0	–	-	–	0.01	-	0.0226	–	0.00606	–
2-Chlorophenol	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Dibenzofuran	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
Dibromomethane	0	-	46	0	–	-	–	0.00561	-	0.02	–	0.00564	–
1,2-Dichlorobenzene	0	-	46	0	–	-	–	0.00561	-	0.3	–	0.0543	–
1,4-Dichlorobenzene	0	-	46	0	–	-	–	0.00561	-	0.3	–	0.0543	–
1,4 Dichloro-2-butene	0	-	46	0	–	-	–	0.0112	-	0.0226	–	0.00779	–
1,1-Dichloroethane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
1,2-Dichloroethane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
1,1-Dichloroethylene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
cis-1,2-Dichloroethene	0	-	30	0	–	-	–	0.00561	-	0.0113	–	0.00331	–
trans-1,2-Dichloroethene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Dichloromethane	4	-	43	9.3	0.00755	-	0.009	0.005	-	0.00693	SWMU 148 SB-05(11/29/1993)	0.00339	–
1,2-Dichloropropane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
cis-1,3-Dichloropropene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
trans-1,3-Dichloropropene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Ethanol	0	-	16	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	46	0	–	-	–	0.00561	-	0.02	–	0.00564	–

Table E.8.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethylbenzene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Iodomethane	0	-	46	0	–	-	–	0.0112	-	0.0226	–	0.00779	–
m-Dichlorobenzene	0	-	46	0	–	-	–	0.00561	-	0.3	–	0.0543	–
Methyl n-butyl ketone	0	-	46	0	–	-	–	0.0224	-	0.05	–	0.0173	–
Methylbenzene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
4-Methyl-2-pentanone (MIBK)	0	-	46	0	–	-	–	0.0224	-	0.05	–	0.0173	–
Nitrobenzene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Styrene (monomer)	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Tetrachloroethene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
1,1,2,2-Tetrachloroethane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
1,1,1-Trichloroethane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
1,1,2-Trichloroethane	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
1,2,3-Trichloropropane	0	-	46	0	–	-	–	0.00561	-	0.02	–	0.00564	–
1,2,4-Trichlorobenzene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Trichloroethylene	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Vinyl acetate	0	-	46	0	–	-	–	0.01	-	0.0452	–	0.0104	–
Vinyl chloride	0	-	46	0	–	-	–	0.01	-	0.0226	–	0.00606	–
Xylenes	0	-	46	0	–	-	–	0.005	-	0.0113	–	0.00303	–
Semi Volatile Organic Compounds													
Benzidine	0	-	46	0	–	-	–	1.7	-	2.22	–	0.953	–
Benzoic acid	0	-	46	0	–	-	–	1.79	-	2.22	–	1.01	–
Benzyl alcohol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
Benzyl butyl phthalate	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Bis(2-chloroethoxy)methane	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Bis(2-ethylhexyl)phthalate	1	-	46	2.17	0.4	-	0.4	0.3	-	0.458	141B8(5/1/1992)	0.193	–
4-Bromophenyl phenyl ether	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
p-Chloroaniline	0	-	30	0	–	-	–	0.00577	-	0.458	–	0.188	–
4-Chloro-3-methylphenol	0	-	46	0	–	-	–	0.37	-	0.7	–	0.257	–
4-Chlorophenyl phenyl ether	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
3,3'-Dichlorobenzidine	0	-	46	0	–	-	–	0.37	-	0.7	–	0.257	–
2,4-Dichlorophenol	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Diethyl phthalate	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
2,4-Dimethylphenol	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
2,4-Dinitrophenol	0	-	46	0	–	-	–	1.79	-	2.22	–	1.01	–
2,4-Dinitrotoluene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
1,2-Diphenylhydrazine	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
Dimethyl phthalate	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Di-n-butyl phthalate	1	-	46	2.17	0.592	-	0.592	0.3	-	0.458	SWMU 148 SB-02(11/29/1993)	0.196	–

Table E.8.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Di-n-octyl phthalate	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Diphenylamine	0	-	30	0	–	-	–	1.12	-	1.39	–	0.629	–
Hexachloro-1,3-butadiene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Hexachlorobenzene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Hexachlorocyclopentadiene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Hexachloroethane	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Methanamine, n-methyl-n-nitroso	0	-	16	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	46	0	–	-	–	1.79	-	2.22	–	1.01	–
2-Methylphenol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
4-Methylphenol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
2-Nitroaniline	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
3-Nitroaniline	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
p-Nitroaniline	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
2-Nitrophenol	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
4-Nitrophenol	0	-	46	0	–	-	–	1.79	-	2.22	–	1.01	–
n-Nitrosodi-n-propylamine	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
n-Nitrosodiphenylamine	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Pentachlorophenol	0	-	46	0	–	-	–	1.79	-	2.22	–	1.01	–
Phenol	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Tribromomethane	0	-	30	0	–	-	–	0.00561	-	0.0113	–	0.00336	–
2,4,5-Trichlorophenol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
2,4,6-Trichlorophenol	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Acenaphthylene	0	-	43	0	–	-	–	0.3	-	0.458	–	0.187	–
Anthracene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Benzo(a)anthracene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Benzo(a)pyrene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Benzo(b)fluoranthene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Benzo(g,h,i)perylene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Benzo(k)fluoranthene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
1,2-Benzphenanthracene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
1-Chloronaphthalene	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
2-Chloronaphthalene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Dibenz(a,h)anthracene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Fluoranthene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Fluorene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–

Table E.8.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Indeno(1,2,3-cd)pyrene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
2-Methylnaphthalene	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
Naphthalene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Phenanthrene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Pyrene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–
Pesticides													
Aldrin	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
alpha-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
beta-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Camphechlor	0	-	15	0	–	-	–	0.067	-	0.067	–	0.0335	–
Chlordane	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
4,4-DDD	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDE	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDT	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
delta-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Dieldrin	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan I	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Endosulfan II	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan sulfate	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin aldehyde	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor epoxide	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	16	0	–	-	–	10	-	13	–	5.09	–
Total Petroleum Hydrocarbons (TPH)	0	-	46	0	–	-	–	10	-	41.6	–	14.1	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1232	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1242	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1254	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1260	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1016	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1248	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–
Explosives													
2,6-Dinitrotoluene	0	-	46	0	–	-	–	0.3	-	0.458	–	0.188	–

Table E.8.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Inorganics													
Arsenic	23	-	45	51.1	0.54	-	9.64	0.42	-	3.47	HMW-43(11/17/1993)	2.18	2.596
Barium	33	-	45	73.3	36	-	179	88	-	110	HMW-43(11/17/1993)	76.3	89.5
Cadmium	0	-	45	0	–	-	–	0.95	-	12.8	–	2.24	–
Chromium	2	-	38	5.26	6.4	-	19.3	1.28	-	34.7	HMW-43(11/17/1993)	12.2	–
Chromium (Hexavalent)	0	-	36	0	–	-	–	1.08	-	6.41	–	0.705	–
Lead	15	-	45	33.3	3.65	-	14.7	1.28	-	27	HMW-43(11/17/1993)	6.4	5.505
Mercury	3	-	45	6.67	0.0258	-	0.0474	0.0227	-	0.1	SWMU 148 SB-07(11/29/1993)	0.0266	–
Selenium	0	-	45	0	–	-	–	0.005	-	3.47	–	1.1	–
Silver	12	-	45	26.7	8.84	-	74.8	1.9	-	34.7	SWMU 148 SB-03(11/29/1993)	17.9	23.26

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	6	-	57	10.5	0.0374	-	0.72	0.0224	-	0.1	141B7(5/1/1992)	0.0557	0.0894	Y
Acetophenone	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
Acrolein	0	-	48	0	–	-	–	0.00561	-	0.2	–	0.0376	–	Y
Acrylonitrile	0	-	57	0	–	-	–	0.01	-	0.1	–	0.0193	–	Y
Benzene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Bis(2-chloroethyl)ether	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
Bis(2-chloroisopropyl)ether	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
Bromobenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromodichloromethane	0	-	40	0	–	-	–	0.00561	-	0.0113	–	0.00369	–	Y
Bromomethane	0	-	57	0	–	-	–	0.005	-	0.05	–	0.00829	–	Y
2-Butanone	0	-	57	0	–	-	–	0.0224	-	0.1	–	0.0261	–	Y
tert-Butyl alcohol	0	-	9	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
n-Butylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
sec-Butylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
tert-Butylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon disulfide	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Carbon tetrachloride	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
CFC-11	0	-	57	0	–	-	–	0.00577	-	0.0226	–	0.00573	–	Y
CFC-12	0	-	26	0	–	-	–	0.01	-	0.02	–	0.00827	–	Y
Chlorobenzene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Chlorobromomethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorodibromomethane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	N
Chloroethane	0	-	57	0	–	-	–	0.01	-	0.0226	–	0.00588	–	Y
2-Chloroethyl vinyl ether	0	-	57	0	–	-	–	0.01	-	0.05	–	0.00904	–	Y
Chloroform	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Chloromethane	0	-	57	0	–	-	–	0.01	-	0.0226	–	0.00588	–	Y
2-Chlorophenol	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
2-Chlorotoluene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
4-Chlorotoluene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Cymene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibenzofuran	0	-	37	0	–	-	–	0.25	-	0.458	–	0.195	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	9	0	–	-	–	0.05	-	0.05	–	0.025	–	N
1,2-Dibromoethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibromomethane	0	-	57	0	–	-	–	0.00561	-	0.02	–	0.00557	–	Y
1,2-Dichlorobenzene	0	-	57	0	–	-	–	0.00561	-	0.3	–	0.0473	–	Y
1,4-Dichlorobenzene	0	-	57	0	–	-	–	0.00561	-	0.3	–	0.0473	–	Y

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
1,4 Dichloro-2-butene	0	-	48	0	–	-	–	0.0112	-	0.0226	–	0.00782	–	Y
trans-1,4-Dichlorobutene	0	-	9	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
1,1-Dichloroethane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,2-Dichloroethane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,1-Dichloroethylene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
cis-1,2-Dichloroethene	0	-	40	0	–	-	–	0.00561	-	0.0113	–	0.00369	–	Y
trans-1,2-Dichloroethene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Dichloromethane	4	-	53	7.55	0.00755	-	0.009	0.005	-	0.05	SWMU 148 SB-05(11/29/1993)	0.00704	–	Y
1,2-Dichloropropane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,3-Dichloropropane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2,2-Dichloropropane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloropropene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
cis-1,3-Dichloropropene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
trans-1,3-Dichloropropene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Ethanol	0	-	17	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	48	0	–	-	–	0.00561	-	0.02	–	0.00568	–	Y
Ethylbenzene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Iodomethane	0	-	57	0	–	-	–	0.0112	-	0.05	–	0.0105	–	Y
Isopropyl alcohol	0	-	9	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Isopropylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m-Dichlorobenzene	0	-	57	0	–	-	–	0.00561	-	0.3	–	0.0473	–	Y
Methyl n-butyl ketone	0	-	57	0	–	-	–	0.0224	-	0.05	–	0.0186	–	Y
Methylbenzene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	57	0	–	-	–	0.0224	-	0.05	–	0.0186	–	Y
Methyl tert-butyl ether (MTBE)	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Nitrobenzene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
n-Propylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Styrene (monomer)	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Tetrachloroethene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,1,1,2-Tetrachloroethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,2,2-Tetrachloroethane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,1,1-Trichloroethane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,1,2-Trichloroethane	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
1,2,3-Trichlorobenzene	0	-	9	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,3-Trichloropropane	0	-	57	0	–	-	–	0.00561	-	0.02	–	0.00557	–	Y
1,2,4-Trichlorobenzene	0	-	57	0	–	-	–	0.05	-	0.458	–	0.162	–	Y
1,2,4-Trimethylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,3,5-Trimethylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Trichloroethylene	0	-	57	0	–	-	–	0.005	-	0.0113	–	0.00334	–	Y
Vinyl acetate	0	-	48	0	–	-	–	0.01	-	0.0452	–	0.0103	–	Y
Vinyl chloride	0	-	57	0	–	-	–	0.01	-	0.0226	–	0.00588	–	Y
m,p-Xylene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
o-Xylene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	48	0	–	-	–	0.005	-	0.0113	–	0.00302	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Aniline	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Benzidine	0	-	54	0	–	-	–	0.25	-	2.22	–	0.861	–	N
Benzoic acid	0	-	54	0	–	-	–	0.25	-	2.22	–	0.909	–	N
Benzyl alcohol	0	-	37	0	–	-	–	0.25	-	0.458	–	0.195	–	N
Benzyl butyl phthalate	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Bis(2-chloroethoxy)methane	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Bis(2-ethylhexyl)phthalate	1	-	54	1.85	0.4	-	0.4	0.25	-	0.458	141B8(5/1/1992)	0.185	–	N
4-Bromophenyl phenyl ether	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
2-Butoxy ethanol	0	-	9	0	–	-	–	0.25	-	0.25	–	0.125	–	N
p-Chloroaniline	0	-	37	0	–	-	–	0.00577	-	0.458	–	0.179	–	N
4-Chloro-3-methylphenol	0	-	54	0	–	-	–	0.25	-	0.7	–	0.244	–	N
Chlorophenols	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
4-Chlorophenyl phenyl ether	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
m,p-Cresol	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Dibenz[a,,j]acridine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
3,3'-Dichlorobenzidine	0	-	54	0	–	-	–	0.25	-	0.7	–	0.244	–	N
2,4-Dichlorophenol	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
2,6-Dichlorophenol	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Diethyl phthalate	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
4-Dimethylaminoazobenzene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2,4-Dimethylphenol	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
2,4-Dinitrophenol	0	-	54	0	–	-	–	0.25	-	2.22	–	0.909	–	N
2,4-Dinitrotoluene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
1,2-Diphenylhydrazine	0	-	31	0	–	-	–	1.79	-	2.22	–	1.01	–	N
a,a-Dimethylphenethylamine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Dimethyl phthalate	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Di-n-butyl phthalate	1	-	54	1.85	0.592	-	0.592	0.25	-	0.458	SWMU 148 SB-02(11/29/1993)	0.188	–	N
Di-n-octyl phthalate	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
1,4-Dioxane	0	-	9	0	–	-	–	0.5	-	0.5	–	0.25	–	N
Diphenylamine	0	-	37	0	–	-	–	0.25	-	1.39	–	0.548	–	N

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Diphenylhydrazine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Ethyl methanesulfonate	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Hexachloro-1,3-butadiene	0	-	57	0	–	-	–	0.05	-	0.458	–	0.162	–	N
Hexachlorobenzene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Hexachlorocyclopentadiene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Hexachloroethane	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Methanamine, n-methyl-n-nitroso	0	-	23	0	–	-	–	0.25	-	0.33	–	0.155	–	N
2-Methyl-4,6-dinitrophenol	0	-	54	0	–	-	–	0.25	-	2.22	–	0.909	–	N
Methyl methanesulfonate	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Methylphenol	0	-	37	0	–	-	–	0.25	-	0.458	–	0.195	–	N
4-Methylphenol	0	-	31	0	–	-	–	0.37	-	0.458	–	0.208	–	N
2-Methyl pyridine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1-Naphthylamine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Naphthylamine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Nitroaniline	0	-	37	0	–	-	–	0.25	-	2.22	–	0.867	–	N
3-Nitroaniline	0	-	37	0	–	-	–	0.25	-	2.22	–	0.867	–	N
p-Nitroaniline	0	-	37	0	–	-	–	0.25	-	2.22	–	0.867	–	N
2-Nitrophenol	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
4-Nitrophenol	0	-	54	0	–	-	–	0.25	-	2.22	–	0.909	–	N
n-Nitrosodi-n-butylamine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
n-Nitrosodi-n-propylamine	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
n-Nitrosodiphenylamine	0	-	48	0	–	-	–	0.3	-	0.458	–	0.188	–	N
n-Nitrosopiperidine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Pentachlorobenzene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Pentachlorophenol	0	-	54	0	–	-	–	0.25	-	2.22	–	0.909	–	N
Phenacetin	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Phenol	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Propyzamide	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Pyridine	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1,2,4,5-Tetrachlorobenzene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Tribromomethane	0	-	40	0	–	-	–	0.00561	-	0.0113	–	0.00373	–	N
2,4,5-Trichlorophenol	0	-	37	0	–	-	–	0.25	-	0.458	–	0.195	–	N
2,4,6-Trichlorophenol	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
Acenaphthylene	0	-	50	0	–	-	–	0.25	-	0.458	–	0.179	–	Y
Anthracene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Benzo(a)anthracene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Benzo(a)pyrene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Benzo(b)fluoranthene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Benzo(g,h,i)perylene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Benzo(k)fluoranthene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
1,2-Benzphenanthracene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
1-Chloronaphthalene	0	-	37	0	–	-	–	0.25	-	0.458	–	0.195	–	Y
2-Chloronaphthalene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
Dibenz(a,h)anthracene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
7,12-Dimethylbenz(a)anthracene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Fluoranthene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Fluorene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
Indeno(1,2,3-cd)pyrene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
3-Methylchloranthrene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1-Methylnaphthalene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
2-Methylnaphthalene	0	-	37	0	–	-	–	0.25	-	0.458	–	0.195	–	Y
Naphthalene	0	-	57	0	–	-	–	0.05	-	0.458	–	0.162	–	Y
Phenanthrene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	Y
Pyrene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Pesticides														
Aldrin	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
alpha-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
beta-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Camphechlor	0	-	15	0	–	-	–	0.067	-	0.067	–	0.0335	–	N
Chlordane	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
4,4-DDD	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDE	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDT	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
delta-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Dieldrin	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endosulfan I	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Endosulfan II	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endosulfan sulfate	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin aldehyde	0	-	15	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
gamma-BHC	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor epoxide	0	-	15	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Pentachloronitrobenzene	0	-	6	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethan	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	9	0	–	-	–	50	-	50	–	25	–	N
Gasoline Range Organics (GRO)	0	-	9	0	–	-	–	1	-	1	–	0.5	–	N
Petroleum hydrocarbons	0	-	17	0	–	-	–	10	-	13	–	5.18	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	48	0	–	-	–	10	-	41.6	–	14.1	–	N
Polychlorinated Biphenyls														
Aroclor 1221	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1232	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1242	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1254	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1260	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1016	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1248	0	-	15	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Explosives														
2,6-Dinitrotoluene	0	-	54	0	–	-	–	0.25	-	0.458	–	0.181	–	N
Inorganics														
Arsenic	24	-	55	43.6	0.54	-	11.6	0.42	-	3.47	HMW-43(11/17/1993)	2.15	2.564	N
Barium	42	-	55	76.4	22.3	-	179	88	-	110	HMW-43(11/17/1993)	70	80.77	N
Cadmium	0	-	55	0	–	-	–	0.1	-	12.8	–	1.87	–	N
Chromium	11	-	47	23.4	1.54	-	19.3	1.28	-	34.7	HMW-43(11/17/1993)	10.7	6.185	N
Chromium (Hexavalent)	0	-	41	0	–	-	–	1.08	-	6.41	–	0.924	–	N
Copper	5	-	5	100	1.16	-	2.49	–	-	–	HLSF-SB-027	1.77	–	N
Lead	23	-	55	41.8	2.21	-	14.7	1	-	27	HMW-43(11/17/1993)	6.07	4.841	N
Mercury	3	-	55	5.45	0.0258	-	0.0474	0.0227	-	0.1	SWMU 148 SB-07(11/29/1993)	0.0258	–	N
Nitrate + Nitrite	5	-	5	100	1.15	-	15.4	–	-	–	HLSF-SB-025(11/3/2006)	6.14	–	N
Phosphorus	5	-	5	100	34.9	-	86	–	-	–	HLSF-SB-027	57.5	–	N
Selenium	0	-	55	0	–	-	–	0.005	-	3.47	–	1.01	–	N
Silver	13	-	55	23.6	8.84	-	74.8	0.05	-	34.7	SWMU 148 SB-03(11/29/1993)	15	20.86	N
Sodium	5	-	5	100	655	-	1760	–	-	–	HLSF-SB-025(11/3/2006)	1000	–	N
Zinc	5	-	5	100	3.73	-	7.53	–	-	–	HLSF-SB-027	4.95	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.

Table E.8.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limits		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)				

For constituents analyzed in two methods, the result of the more precise method was used.
[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.8.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	17	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Acrylonitrile	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bis(2-chloroethyl)ether	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Bis(2-chloroisopropyl)ether	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Bromobenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	17	0	–	-	–	0.001	-	0.005	–	0.00179	–	Y
2-Butanone	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
sec-Butylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
tert-Butylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-12	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	6	-	17	35.3	0.0014	-	0.00219	0.001	-	0.001	HMW-11(2/22/2006)	0.00096	0.00165	Y
Chloromethane	2	-	17	11.8	0.0017	-	0.00191	0.001	-	0.001	HMW-43(7/27/2004)	0.000654	–	Y
2-Chlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
2-Chlorotoluene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibenzofuran	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	17	0	–	-	–	0.002	-	0.005	–	0.00197	–	N
1,2-Dibromoethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	17	0	–	-	–	0.001	-	0.005	–	0.000735	–	Y
1,4-Dichlorobenzene	0	-	17	0	–	-	–	0.001	-	0.005	–	0.000735	–	Y
trans-1,4-Dichlorobutene	0	-	17	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	6	-	17	35.3	0.00153	-	0.0019	0.001	-	0.001	HMW-11(2/18/2004)	0.000934	0.00172	Y
1,2-Dichloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y

Table E.8.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,1-Dichloroethylene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	17	0	–	-	–	0.001	-	0.005	–	0.000735	–	Y
Methyl n-butyl ketone	0	-	17	0	–	-	–	0.001	-	0.005	–	0.00179	–	Y
Methylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	17	0	–	-	–	0.0005	-	5	–	0.59	–	Y
n-Propylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	6	-	17	35.3	0.0318	-	0.0438	0.001	-	0.001	HMW-11(2/18/2004)	0.0137	0.0357	Y
Vinyl chloride	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Aniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N

Table E.8.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limits				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)		Min (mg/L)	-	Max (mg/L)					
Benzidine	0	-	17	0	–	-	–		0.01	-	15		–	1.77	–	N
Benzoic acid	0	-	17	0	–	-	–		0.005	-	20		–	2.35	–	N
Benzyl alcohol	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Benzyl butyl phthalate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Bis(2-chloroethoxy)methane	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Bis(2-ethylhexyl)phthalate	0	-	17	0	–	-	–		0.005	-	10		–	1.18	–	N
4-Bromophenyl phenyl ether	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2-Butoxy ethanol	0	-	2	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
p-Chloroaniline	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
4-Chloro-3-methylphenol	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Chlorophenols	0	-	17	0	–	-	–		0.005	-	5		–	0.592	–	N
4-Chlorophenyl phenyl ether	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
m,p-Cresol	0	-	13	0	–	-	–		0.005	-	5		–	0.387	–	N
Dibenz[a,,j]acridine	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
3,3'-Dichlorobenzidine	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2,4-Dichlorophenol	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2,6-Dichlorophenol	0	-	17	0	–	-	–		0.005	-	5		–	0.592	–	N
Diethyl phthalate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
4-Dimethylaminoazobenzene	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2,4-Dimethylphenol	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2,4-Dinitrophenol	0	-	17	0	–	-	–		0.005	-	20		–	2.35	–	N
2,4-Dinitrotoluene	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
a,a-Dimethylphenethylamine	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Dimethyl phthalate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Di-n-butyl phthalate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
m-Dinitrobenzene	0	-	14	0	–	-	–		0.0005	-	0.0005		–	0.00025	–	N
Di-n-octyl phthalate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
1,4-Dioxane	0	-	2	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Diphenylamine	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Diphenylhydrazine	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Ethyl methanesulfonate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Hexachloro-1,3-butadiene	0	-	17	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Hexachlorobenzene	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Hexachlorocyclopentadiene	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Hexachloroethane	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Methanamine, n-methyl-n-nitroso	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2-Methyl-4,6-dinitrophenol	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
Methyl methanesulfonate	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N
2-Methylphenol	0	-	17	0	–	-	–		0.005	-	5		–	0.59	–	N

Table E.8.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
3-Methylphenol	0	-	4	0	–	-	–	0.005	-	5	–	1.25	–	N
4-Methylphenol	0	-	4	0	–	-	–	0.005	-	5	–	1.25	–	N
2-Methyl pyridine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1-Naphthylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Naphthylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Nitroaniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
3-Nitroaniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
p-Nitroaniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Nitrophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
4-Nitrophenol	0	-	17	0	–	-	–	0.025	-	5	–	0.598	–	N
n-Nitrosodi-n-butylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
n-Nitrosodi-n-propylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
n-Nitrosopiperidine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pentachlorobenzene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pentachlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.592	–	N
Phenacetin	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Phenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Propyzamide	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pyridine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1,2,4,5-Tetrachlorobenzene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Tribromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2,4,6-Trichlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.592	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1,3,5-Trinitrobenzene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Acenaphthylene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Benzo(a)anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(a)pyrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(b)fluoranthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(g,h,i)perylene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(k)fluoranthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1,2-Benzphenanthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1-Chloronaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
2-Chloronaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Dibenz(a,h)anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
7,12-Dimethylbenz(a)anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N

Table E.8.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Fluoranthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Fluorene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Indeno(1,2,3-cd)pyrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
3-Methylchloranthrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1-Methylnaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
2-Methylnaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Naphthalene	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Phenanthrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Pyrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pesticides														
Pentachloronitrobenzene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	17	0	–	-	–	5	-	50	–	15.7	–	N
Gasoline Range Organics (GRO)	0	-	17	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Explosives														
2-Amino-4,6-dinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-2,6-dinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-dnt / 2-Amino-dnt	0	-	12	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2,6-DNT / 2,4-DNT	4	-	12	33.3	0.00063	-	0.000939	0.0005	-	0.0005	HMW-43(8/11/2005)	0.000431	–	N
2-Nitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
3-Nitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
RDX	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Aluminum	6	-	12	50	0.051	-	3.9	0.03	-	0.03	HMW-11(2/18/2004)	0.675	1.33	N
Ammonia	0	-	14	0	–	-	–	1	-	1	–	0.5	–	N
Antimony	0	-	3	0	–	-	–	0.02	-	0.05	–	0.015	–	N
Arsenic	0	-	16	0	–	-	–	0.005	-	0.01	–	0.00406	–	N
Barium	10	-	16	62.5	0.01	-	0.042	0.01	-	0.1	HMW-11(8/30/2006)	0.0248	0.0232	N
Beryllium	5	-	15	33.3	0.003	-	0.008	0.002	-	0.0025	HMW-43(2/22/2006)	0.00253	0.00451	N
Boron	12	-	12	100	2.75	-	5.23	–	-	–	HMW-11(4/7/2005)	4.25	4.611	N
Cadmium	3	-	17	17.6	0.003	-	0.007	0.001	-	0.005	HMW-43(2/22/2006)	0.00188	–	N
Calcium metal	4	-	4	100	357	-	569	–	-	–	HMW-43(8/29/2006)	468	–	N
Chromium	8	-	17	47.1	0.008	-	0.18	0.005	-	0.01	HMW-11(7/26/2004)	0.0555	0.0882	N
Chromium (Hexavalent)	4	-	8	50	0.178	-	0.263	0.01	-	0.01	HMW-11(2/18/2004)	0.109	–	N

Table E.8.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limits			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Cobalt	2	-	15	13.3	0.006	-	0.006	0.002	-	0.02	HMW-11(2/22/2006),HMW-43(2/22/2006)	0.00577	–	N
Copper	8	-	17	47.1	0.005	-	0.078	0.005	-	0.0125	HMW-11(4/7/2005)	0.0175	0.0281	N
Cyanide (Total)	0	-	7	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Fluoride	16	-	17	94.1	3.21	-	7.02	0.2	-	0.2	HMW-11(8/30/2006)	3.92	5.383	N
Iron	10	-	12	83.3	0.014	-	2.18	0.01	-	0.01	HMW-11(2/18/2004)	0.431	1.283	N
Lead	0	-	17	0	–	-	–	0.005	-	0.01	–	0.00324	–	N
Lithium	4	-	4	100	0.175	-	0.813	–	-	–	HMW-11(2/22/2006),HMW-43(2/22/2006)	0.546	–	N
Magnesium	4	-	4	100	414	-	780	–	-	–	HMW-11(8/30/2006)	589	–	N
Manganese	2	-	12	16.7	0.026	-	0.032	0.005	-	0.025	HMW-11(2/18/2004)	0.0144	–	N
Mercury	0	-	16	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Molybdenum	12	-	12	100	0.158	-	0.352	–	-	–	HMW-11(7/26/2004)	0.257	0.286	N
Nickel	2	-	15	13.3	0.012	-	0.012	0.005	-	0.025	HMW-11(2/22/2006),HMW-11(8/30/2006)	0.0071	–	N
Nitrate	14	-	14	100	9.66	-	82.8	–	-	–	HMW-43(2/22/2006)	47.6	86.75	N
Nitrate + Nitrite	3	-	3	100	9.98	-	131	–	-	–	HMW-43(8/13/2008)	50.8	–	N
Phosphorus	4	-	12	33.3	0.057	-	0.199	0.05	-	0.05	HMW-11(8/11/2005)	0.0508	–	N
Potassium	4	-	4	100	87.2	-	126	–	-	–	HMW-11(8/30/2006)	104	–	N
Selenium	4	-	16	25	0.031	-	0.129	0.01	-	0.05	HMW-11(4/7/2005)	0.0293	–	N
Silver	0	-	17	0	–	-	–	0.002	-	0.0125	–	0.0025	–	N
Sodium	6	-	6	100	686	-	3640	–	-	–	HMW-11(12/19/2006)	2000	–	N
Strontium	12	-	12	100	4.6	-	16.7	–	-	–	HMW-11(4/7/2005)	8.52	10.99	N
Sulfate	17	-	17	100	3640	-	7710	–	-	–	HMW-11(8/30/2006)	5520	6241	N
Thallium	0	-	3	0	–	-	–	0.02	-	0.05	–	0.02	–	N
Tin	1	-	15	6.67	0.037	-	0.037	0.025	-	0.1	HMW-11(2/22/2006)	0.0166	–	N
Vanadium	13	-	15	86.7	0.013	-	0.07	0.025	-	0.025	HMW-11(2/22/2006)	0.0313	0.04	N
Zinc	4	-	17	23.5	0.013	-	0.021	0.005	-	0.025	HMW-11(8/30/2006)	0.00841	–	N
Other														
Bromide	7	-	15	46.7	0.52	-	3.43	0.2	-	1	HMW-11(12/19/2006)	0.69	1.267	N
Chloride	17	-	17	100	297	-	2450	–	-	–	HMW-11(8/30/2006)	1190	2180	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.8-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL noncancer)
Volatile Organic Compounds																	
Acetone	0	/	11	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–
Acrolein	0	/	11	0	–	0.2	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–
Acrylonitrile	0	/	11	0	–	0.1	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–
Benzene	0	/	11	0	–	0.0062	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–
Bis(2-chloroethyl)ether	0	/	11	0	–	0.411	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–
Bis(2-chloroisopropyl)ether	0	/	11	0	–	0.411	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–
Bromodichloromethane	0	/	10	0	–	0.0062	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–
Bromomethane	0	/	11	0	–	0.0125	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–
2-Butanone	0	/	11	0	–	0.1	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–
Carbon disulfide	0	/	11	0	–	0.0062	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–
Carbon tetrachloride	0	/	11	0	–	0.0062	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–
CFC-11	0	/	11	0	–	0.0125	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–
CFC-12	0	/	1	0	–	0.02	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–
Chlorobenzene	0	/	11	0	–	0.0062	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–
Chlorodibromomethane	0	/	11	0	–	0.0062	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–
Chloroethane	0	/	11	0	–	0.0125	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–
2-Chloroethyl vinyl ether	0	/	11	0	–	0.0125	–	NA	n	NA	n	–	–	–	–	–	–
Chloroform	0	/	11	0	–	0.0062	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–
Chloromethane	0	/	11	0	–	0.0125	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–
2-Chlorophenol	0	/	11	0	–	0.411	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–
Dibenzofuran	0	/	10	0	–	0.411	–	7.80E+01	n	1.00E+03	n	–	–	–	–	–	–
Dibromomethane	0	/	11	0	–	0.02	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–
1,2-Dichlorobenzene	0	/	11	0	–	0.3	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–
1,4-Dichlorobenzene	0	/	11	0	–	0.3	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–
1,4 Dichloro-2-butene	0	/	11	0	–	0.02	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–
1,1-Dichloroethane	0	/	11	0	–	0.0062	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–
1,2-Dichloroethane	0	/	11	0	–	0.0062	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–
1,1-Dichloroethylene	0	/	11	0	–	0.0062	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–
cis-1,2-Dichloroethene	0	/	10	0	–	0.0062	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–
trans-1,2-Dichloroethene	0	/	11	0	–	0.0062	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–
Dichloromethane	1	/	10	10	0.00846	0.0062	–	1.99E+02	c	1.09E+03	c	no	no	4.24E-05	–	7.79E-06	–
1,2-Dichloropropane	0	/	11	0	–	0.0062	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–
cis-1,3-Dichloropropene	0	/	11	0	–	0.0062	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–
trans-1,3-Dichloropropene	0	/	11	0	–	0.0062	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–
Ethanol	0	/	1	0	–	1	–	NA	n	NA	n	–	–	–	–	–	–
Ethyl methacrylate	0	/	11	0	–	0.02	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–
Ethylbenzene	0	/	11	0	–	0.0062	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–
Iodomethane	0	/	11	0	–	0.02	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–
m-Dichlorobenzene	0	/	11	0	–	0.3	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–
Methyl n-butyl ketone	0	/	11	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–
Methylbenzene	0	/	11	0	–	0.0062	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–
4-Methyl-2-pentanone (MIBK)	0	/	11	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–
Nitrobenzene	0	/	11	0	–	0.411	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–
Styrene (monomer)	0	/	11	0	–	0.0062	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–
Tetrachloroethene	0	/	11	0	–	0.0062	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–
1,1,2,2-Tetrachloroethane	0	/	11	0	–	0.0062	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–
1,1,1-Trichloroethane	0	/	11	0	–	0.0062	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–
1,1,2-Trichloroethane	0	/	11	0	–	0.0062	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–
1,2,3-Trichloropropane	0	/	11	0	–	0.02	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–
1,2,4-Trichlorobenzene	0	/	11	0	–	0.411	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–
Trichloroethylene	0	/	11	0	–	0.0062	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–
Vinyl acetate	0	/	11	0	–	0.0249	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–
Vinyl chloride	0	/	11	0	–	0.0125	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–
Xylenes	0	/	11	0	–	0.0062	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–
Semi Volatile Organic Compounds																	
Benzidine	0	/	11	0	–	1.99 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–

Table E.8-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)
Benzoic acid	0 / 11	0	–	2	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–
Benzyl alcohol	0 / 10	0	–	0.411	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–
Benzyl butyl phthalate	0 / 11	0	–	0.411	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–
Bis(2-chloroethoxy)methane	0 / 11	0	–	0.411	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–
Bis(2-ethylhexyl)phthalate	0 / 11	0	–	0.411	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–
4-Bromophenyl phenyl ether	0 / 11	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–
p-Chloroaniline	0 / 10	0	–	0.411	–	2.40E+01	c	8.60E+01	c	–	–	–	–	–	–
4-Chloro-3-methylphenol	0 / 11	0	–	0.7	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–
4-Chlorophenyl phenyl ether	0 / 11	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–
3,3'-Dichlorobenzidine	0 / 11	0	–	0.7	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–
2,4-Dichlorophenol	0 / 11	0	–	0.411	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–
Diethyl phthalate	0 / 11	0	–	0.411	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–
2,4-Dimethylphenol	0 / 11	0	–	0.411	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–
2,4-Dinitrophenol	0 / 11	0	–	2	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–
2,4-Dinitrotoluene	0 / 11	0	–	0.411	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–
1,2-Diphenylhydrazine	0 / 10	0	–	1.99	–	6.08E+00	c	2.39E+01	c	–	–	–	–	–	–
Dimethyl phthalate	0 / 11	0	–	0.411	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–
Di-n-butyl phthalate	0 / 11	0	–	0.411	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–
Di-n-octyl phthalate	0 / 11	0	–	0.411	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–
Diphenylamine	0 / 10	0	–	1.24	–	1.50E+03	n	1.50E+04	n	–	–	–	–	–	–
Hexachloro-1,3-butadiene	0 / 11	0	–	0.411	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–
Hexachlorobenzene	0 / 11	0	–	0.411	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–
Hexachlorocyclopentadiene	0 / 11	0	–	0.411	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–
Hexachloroethane	0 / 11	0	–	0.411	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–
Methanamine, n-methyl-n-nitroso	0 / 1	0	–	0.33 ^	–	9.54E-02	c	3.76E-01	c	–	–	–	–	–	–
2-Methyl-4,6-dinitrophenol	0 / 11	0	–	2	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–
2-Methylphenol	0 / 10	0	–	0.411	–	3.10E+03	n	3.10E+04	n	–	–	–	–	–	–
4-Methylphenol	0 / 10	0	–	0.411	–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–
2-Nitroaniline	0 / 10	0	–	1.99	–	6.10E+02	n	6.00E+03	n	–	–	–	–	–	–
3-Nitroaniline	0 / 10	0	–	1.99	–	6.10E+02	n	6.81E+03	n	–	–	–	–	–	–
p-Nitroaniline	0 / 10	0	–	1.99	–	2.40E+02	c	8.60E+02	c	–	–	–	–	–	–
2-Nitrophenol	0 / 11	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–
4-Nitrophenol	0 / 11	0	–	2	–	NA	n	NA	n	–	–	–	–	–	–
n-Nitrosodi-n-propylamine	0 / 11	0	–	0.411	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–
n-Nitrosodiphenylamine	0 / 11	0	–	0.411	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–
Pentachlorophenol	0 / 11	0	–	2	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–
Phenol	0 / 11	0	–	0.411	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–
Tribromomethane	0 / 10	0	–	0.0085	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–
2,4,5-Trichlorophenol	0 / 10	0	–	0.411	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–
2,4,6-Trichlorophenol	0 / 11	0	–	0.411	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0 / 11	0	–	0.411	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	0 / 11	0	–	0.411	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–
Acenaphthylene	0 / 10	0	–	0.411	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–
Anthracene	0 / 11	0	–	0.411	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–
Benzo(a)anthracene	0 / 11	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–
Benzo(a)pyrene	0 / 11	0	–	0.411	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–
Benzo(b)fluoranthene	0 / 11	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–
Benzo(g,h,i)perylene	0 / 11	0	–	0.411	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–
Benzo(k)fluoranthene	0 / 11	0	–	0.411	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–
1,2-Benzphenanthracene	0 / 11	0	–	0.411	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–
1-Chloronaphthalene	0 / 10	0	–	0.411	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–
2-Chloronaphthalene	0 / 11	0	–	0.411	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–
Dibenz(a,h)anthracene	0 / 11	0	–	0.411	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–
Fluoranthene	0 / 11	0	–	0.411	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–
Fluorene	0 / 11	0	–	0.411	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–
Indeno(1,2,3-cd)pyrene	0 / 11	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–

Table E.8-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)
2-Methylnaphthalene	0 / 10	0	–	0.411	–	3.10E+02 n	4.10E+03 n	–	–	–	–	–	–
Naphthalene	0 / 11	0	–	0.411	–	4.50E+01 c	2.52E+02 c	–	–	–	–	–	–
Phenanthrene	0 / 11	0	–	0.411	–	1.83E+03 n	2.05E+04 n	–	–	–	–	–	–
Pyrene	0 / 11	0	–	0.411	–	1.72E+03 n	1.83E+04 n	–	–	–	–	–	–
Pesticides													
Aldrin	0 / 1	0	–	0.0034	–	2.84E-01 c	1.12E+00 c	–	–	–	–	–	–
alpha-BHC	0 / 1	0	–	0.0034	–	7.70E-01 c	2.70E+00 c	–	–	–	–	–	–
beta-BHC	0 / 1	0	–	0.0034	–	2.70E+00 c	1.06E+01 c	–	–	–	–	–	–
Camphechlor	0 / 1	0	–	0.067	–	4.40E+00 c	1.60E+01 c	–	–	–	–	–	–
Chlordane	0 / 1	0	–	0.034	–	1.62E+01 c	7.19E+01 c	–	–	–	–	–	–
4,4-DDD	0 / 1	0	–	0.0067	–	2.03E+01 c	7.98E+01 c	–	–	–	–	–	–
4,4-DDE	0 / 1	0	–	0.0067	–	1.43E+01 c	5.63E+01 c	–	–	–	–	–	–
4,4-DDT	0 / 1	0	–	0.0067	–	1.72E+01 c	7.81E+01 c	–	–	–	–	–	–
delta-BHC	0 / 1	0	–	0.0034	–	2.11E+01 n	2.70E+02 n	–	–	–	–	–	–
Dieldrin	0 / 1	0	–	0.0067	–	3.04E-01 c	1.20E+00 c	–	–	–	–	–	–
Endosulfan I	0 / 1	0	–	0.0034	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–
Endosulfan II	0 / 1	0	–	0.0067	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–
Endosulfan sulfate	0 / 1	0	–	0.0067	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–
Endrin	0 / 1	0	–	0.0067	–	1.83E+01 n	2.05E+02 n	–	–	–	–	–	–
Endrin aldehyde	0 / 1	0	–	0.0067	–	1.83E+01 n	2.05E+02 n	–	–	–	–	–	–
gamma-BHC	0 / 1	0	–	0.0034	–	5.17E+00 c	2.29E+01 c	–	–	–	–	–	–
Heptachlor	0 / 1	0	–	0.0034	–	1.08E+00 c	4.26E+00 c	–	–	–	–	–	–
Heptachlor epoxide	0 / 1	0	–	0.0034	–	5.30E-01 c	1.90E+00 c	–	–	–	–	–	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0 / 1	0	–	0.034	–	3.10E+02 n	3.10E+03 n	–	–	–	–	–	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0 / 1	0	–	10	–	4.40E+02 n	8.90E+02 n	–	–	–	–	–	–
Total Petroleum Hydrocarbons (TPH)	0 / 11	0	–	37.3	–	4.40E+02 n	8.90E+02 n	–	–	–	–	–	–
Polychlorinated Biphenyls													
Aroclor 1221	0 / 1	0	–	0.034	–	1.76E+00 c	7.06E+00 c	–	–	–	–	–	–
Aroclor 1232	0 / 1	0	–	0.034	–	1.76E+00 c	7.06E+00 c	–	–	–	–	–	–
Aroclor 1242	0 / 1	0	–	0.034	–	2.22E+00 c	8.26E+00 c	–	–	–	–	–	–
Aroclor 1254	0 / 1	0	–	0.034	–	1.12E+00 n	8.26E+00 n	–	–	–	–	–	–
Aroclor 1260	0 / 1	0	–	0.034	–	2.22E+00 c	8.26E+00 c	–	–	–	–	–	–
Aroclor 1016	0 / 1	0	–	0.034	–	3.90E+00 n	2.10E+02 n	–	–	–	–	–	–
Aroclor 1248	0 / 1	0	–	0.034	–	2.20E+00 c	7.40E+00 c	–	–	–	–	–	–
Explosives													
2,6-Dinitrotoluene	0 / 11	0	–	0.411	–	6.12E+01 n	6.87E+02 n	–	–	–	–	–	–
Inorganics													
Arsenic	7 / 11	63.6	8.56	3.12	no	3.90E+00 c	1.77E+01 c	YES	no	2.20E+00	–	4.84E-01	–
Barium	10 / 11	90.9	112	92	YES	1.56E+04 n	2.24E+05 n	no	no	–	7.18E-03	–	5.00E-04
Cadmium	0 / 11	0	–	6.23	no	7.79E+01 n	1.12E+03 n	–	–	–	–	–	–
Chromium	1 / 13	7.69	6.4	31.2	no	2.19E+02 n	2.92E+03 n	no	no	–	2.92E-02	–	2.19E-03
Chromium (Hexavalent)	0 / 12	0	–	1.25	no	2.19E+02 n	2.92E+03 n	–	–	–	–	–	–
Lead	9 / 11	81.8	8.17	23	no	4.00E+02 IEUBK	8.00E+02 IEUBK	no	no	–	–	–	–
Mercury	2 / 11	18.2	0.0474	0.1	YES	7.71E+00 n	4.99E+01 n	no	no	–	6.15E-03	–	9.49E-04
Selenium	0 / 11	0	–	3.12	no	3.91E+02 n	5.68E+03 n	–	–	–	–	–	–
Silver	4 / 11	36.4	72.4	31.2	no	3.91E+02 n	5.68E+03 n	no	no	–	1.85E-01	–	1.28E-02
Total Maximum / Screening Level Ratios										2	0.2	0.5	0.02
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)										2.E-05	0.2	5.E-06	0.02

Target Organ Max/SL Ratios		
Kidney and Liver	0.007	0.0005
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.2	0.01

Table E.8-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)
									Lungs		0.03		0.002
									Gastrointestinal Tract and Forestomach		NA		NA
									Whole Body		NA		NA
									Blood		NA		NA
									Nervous System		NA		NA
									Dental		NA		NA
									Red Blood Cells		NA		NA
									Glands		NA		NA
									Fetus		0.007		0.0005
									Immune System		NA		NA
									Development		NA		NA
									Reproduction		NA		NA
									Bone		NA		NA
									Not Available/ Not Reported		NA		NA

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.

Table E.8-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Exposure Point Concentrations
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is EPC > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Volatile Organic Compounds																
Acetone	0 / 11	0	–	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0 / 11	0	–	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0 / 11	0	–	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0 / 11	0	–	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0 / 11	0	–	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0 / 11	0	–	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromodichloromethane	0 / 10	0	–	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0 / 11	0	–	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0 / 11	0	–	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0 / 11	0	–	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0 / 11	0	–	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0 / 11	0	–	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0 / 1	0	–	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0 / 11	0	–	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0 / 11	0	–	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0 / 11	0	–	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0 / 11	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0 / 11	0	–	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0 / 11	0	–	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0 / 11	0	–	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibenzofuran	0 / 10	0	–	–	7.80E+01	n	1.00E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0 / 11	0	–	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0 / 11	0	–	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0 / 11	0	–	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0 / 11	0	–	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0 / 11	0	–	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0 / 11	0	–	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0 / 11	0	–	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0 / 10	0	–	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0 / 11	0	–	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	1 / 10	10	0.008 m	–	1.99E+02	c	1.09E+03	c	no	no	4.24E-05	–	7.79E-06	–	no	no
1,2-Dichloropropane	0 / 11	0	–	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0 / 11	0	–	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0 / 11	0	–	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethanol	0 / 1	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Ethyl methacrylate	0 / 11	0	–	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0 / 11	0	–	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0 / 11	0	–	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0 / 11	0	–	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0 / 11	0	–	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0 / 11	0	–	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0 / 11	0	–	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0 / 11	0	–	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0 / 11	0	–	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0 / 11	0	–	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0 / 11	0	–	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0 / 11	0	–	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0 / 11	0	–	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0 / 11	0	–	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0 / 11	0	–	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0 / 11	0	–	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0 / 11	0	–	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0 / 11	0	–	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0 / 11	0	–	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																
Benzidine	0 / 11	0	–	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0 / 11	0	–	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl alcohol	0 / 10	0	–	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
Benzyl butyl phthalate	0 / 11	0	–	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0 / 11	0	–	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bis(2-ethylhexyl)phthalate	0 / 11	0	–	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–	no	no

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Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	EPC [a] (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is EPC > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
4-Bromophenyl phenyl ether	0	/	11	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
p-Chloroaniline	0	/	10	0	–	–	2.40E+01	c	8.60E+01	c	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0	/	11	0	–	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0	/	11	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0	/	11	0	–	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0	/	11	0	–	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
Diethyl phthalate	0	/	11	0	–	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0	/	11	0	–	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0	/	11	0	–	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0	/	11	0	–	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–	no	no
1,2-Diphenylhydrazine	0	/	10	0	–	–	6.08E+00	c	2.39E+01	c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0	/	11	0	–	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0	/	11	0	–	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0	/	11	0	–	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–	no	no
Diphenylamine	0	/	10	0	–	–	1.50E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0	/	11	0	–	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0	/	11	0	–	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0	/	11	0	–	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Hexachloroethane	0	/	11	0	–	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	–	9.54E-02	c	3.76E-01	c	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0	/	11	0	–	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–	no	no
2-Methylphenol	0	/	10	0	–	–	3.10E+03	n	3.10E+04	n	–	–	–	–	–	–	no	no
4-Methylphenol	0	/	10	0	–	–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–	no	no
2-Nitroaniline	0	/	10	0	–	–	6.10E+02	n	6.00E+03	n	–	–	–	–	–	–	no	no
3-Nitroaniline	0	/	10	0	–	–	6.10E+02	n	6.81E+03	n	–	–	–	–	–	–	no	no
p-Nitroaniline	0	/	10	0	–	–	2.40E+02	c	8.60E+02	c	–	–	–	–	–	–	no	no
2-Nitrophenol	0	/	11	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Nitrophenol	0	/	11	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0	/	11	0	–	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0	/	11	0	–	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–	no	no
Pentachlorophenol	0	/	11	0	–	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–	no	no
Phenol	0	/	11	0	–	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–	no	no
Tribromomethane	0	/	10	0	–	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–	no	no
2,4,5-Trichlorophenol	0	/	10	0	–	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0	/	11	0	–	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	11	0	–	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	0	/	11	0	–	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0	/	10	0	–	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0	/	11	0	–	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0	/	11	0	–	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0	/	11	0	–	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0	/	11	0	–	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0	/	11	0	–	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0	/	11	0	–	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0	/	11	0	–	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–	no	no
1-Chloronaphthalene	0	/	10	0	–	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0	/	11	0	–	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0	/	11	0	–	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Fluoranthene	0	/	11	0	–	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0	/	11	0	–	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0	/	11	0	–	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no

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Selection of Constituents of Potential Concern in Soil - Based on Exposure Point Concentrations
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	EPC [a] (mg/kg)		Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is EPC > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
2-Methylnaphthalene	0	/	10	0	–		–	3.10E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Naphthalene	0	/	11	0	–		–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Phenanthrene	0	/	11	0	–		–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–	no	no
Pyrene	0	/	11	0	–		–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Pesticides																			
Aldrin	0	/	1	0	–		–	2.84E-01	c	1.12E+00	c	–	–	–	–	–	–	no	no
alpha-BHC	0	/	1	0	–		–	7.70E-01	c	2.70E+00	c	–	–	–	–	–	–	no	no
beta-BHC	0	/	1	0	–		–	2.70E+00	c	1.06E+01	c	–	–	–	–	–	–	no	no
Camphechlor	0	/	1	0	–		–	4.40E+00	c	1.60E+01	c	–	–	–	–	–	–	no	no
Chlordane	0	/	1	0	–		–	1.62E+01	c	7.19E+01	c	–	–	–	–	–	–	no	no
4,4-DDD	0	/	1	0	–		–	2.03E+01	c	7.98E+01	c	–	–	–	–	–	–	no	no
4,4-DDE	0	/	1	0	–		–	1.43E+01	c	5.63E+01	c	–	–	–	–	–	–	no	no
4,4-DDT	0	/	1	0	–		–	1.72E+01	c	7.81E+01	c	–	–	–	–	–	–	no	no
delta-BHC	0	/	1	0	–		–	2.11E+01	n	2.70E+02	n	–	–	–	–	–	–	no	no
Dieldrin	0	/	1	0	–		–	3.04E-01	c	1.20E+00	c	–	–	–	–	–	–	no	no
Endosulfan I	0	/	1	0	–		–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Endosulfan II	0	/	1	0	–		–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Endosulfan sulfate	0	/	1	0	–		–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Endrin	0	/	1	0	–		–	1.83E+01	n	2.05E+02	n	–	–	–	–	–	–	no	no
Endrin aldehyde	0	/	1	0	–		–	1.83E+01	n	2.05E+02	n	–	–	–	–	–	–	no	no
gamma-BHC	0	/	1	0	–		–	5.17E+00	c	2.29E+01	c	–	–	–	–	–	–	no	no
Heptachlor	0	/	1	0	–		–	1.08E+00	c	4.26E+00	c	–	–	–	–	–	–	no	no
Heptachlor epoxide	0	/	1	0	–		–	5.30E-01	c	1.90E+00	c	–	–	–	–	–	–	no	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	/	1	0	–		–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)																			
Petroleum hydrocarbons	0	/	1	0	–		–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)	0	/	11	0	–		–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–	no	no
Polychlorinated Biphenyls																			
Aroclor 1221	0	/	1	0	–		–	1.76E+00	c	7.06E+00	c	–	–	–	–	–	–	no	no
Aroclor 1232	0	/	1	0	–		–	1.76E+00	c	7.06E+00	c	–	–	–	–	–	–	no	no
Aroclor 1242	0	/	1	0	–		–	2.22E+00	c	8.26E+00	c	–	–	–	–	–	–	no	no
Aroclor 1254	0	/	1	0	–		–	1.12E+00	n	8.26E+00	n	–	–	–	–	–	–	no	no
Aroclor 1260	0	/	1	0	–		–	2.22E+00	c	8.26E+00	c	–	–	–	–	–	–	no	no
Aroclor 1016	0	/	1	0	–		–	3.90E+00	n	2.10E+02	n	–	–	–	–	–	–	no	no
Aroclor 1248	0	/	1	0	–		–	2.20E+00	c	7.40E+00	c	–	–	–	–	–	–	no	no
Explosives																			
2,6-Dinitrotoluene	0	/	11	0	–		–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																			
Arsenic	7	/	11	63.6	4.641		no	3.90E+00	c	1.77E+01	c	YES	no	1.19E+00	–	2.62E-01	–	no	no
Barium	10	/	11	90.9	95.81		YES	1.56E+04	n	2.24E+05	n	no	no	–	6.14E-03	–	4.28E-04	no	no
Cadmium	0	/	11	0	–		no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Chromium	1	/	13	7.69	6.4	m	no	2.19E+02	n	2.92E+03	n	no	no	–	2.92E-02	–	2.19E-03	no	no
Chromium (Hexavalent)	0	/	12	0	–		no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	9	/	11	81.8	6.296		no	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	2	/	11	18.2	0.047	m	YES	7.71E+00	n	4.99E+01	n	no	no	–	6.15E-03	–	9.49E-04	no	no
Selenium	0	/	11	0	–		no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	4	/	11	36.4	72.4	m	no	3.91E+02	n	5.68E+03	n	no	no	–	1.85E-01	–	1.28E-02	no	no
Total Maximum / Screening Level Ratios														1	0.2	0.3	0.02		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)														1.E-05	0.2	3.E-06	0.02		

Target Organ Max/SL Ratios		
Kidney and Liver	0.006	0.0004
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.2	0.01
Lungs	0.03	0.002
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	NA	NA

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High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is EPC > Screening Level? Residential Scenario	Is EPC > Screening Level? Industrial Scenario	Residential Scenario EPC / SL (cancer)	Residential Scenario EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	Industrial Scenario EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
								Nervous System		NA		NA		
								Dental		NA		NA		
								Red Blood Cells		NA		NA		
								Glands		NA		NA		
								Fetus		0.006		0.0004		
								Immune System		NA		NA		
								Development		NA		NA		
								Reproduction		NA		NA		
								Bone		NA		NA		
								Not Available/ Not Reported		NA		NA		

Notes:

– =	Not applicable.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1×10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.8-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds												
Acetone	6	/ 46	13	0.72	0.1	–	2.63E+05	n	no	–	2.74E-06	no
Acrolein	0	/ 46	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/ 46	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/ 46	0	–	0.0113	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/ 46	0	–	0.458	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/ 46	0	–	0.458	–	3.10E+03	c	–	–	–	no
Bromodichloromethane	0	/ 30	0	–	0.0113	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/ 46	0	–	0.0226	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/ 46	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/ 46	0	–	0.0113	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/ 46	0	–	0.0113	–	1.99E+02	n	–	–	–	no
CFC-11	0	/ 46	0	–	0.0226	–	5.82E+03	n	–	–	–	no
CFC-12	0	/ 16	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/ 46	0	–	0.0113	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/ 46	0	–	0.0113	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/ 46	0	–	0.0226	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/ 46	0	–	0.0226	–	NA	n	–	–	–	no
Chloroform	0	/ 46	0	–	0.0113	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/ 46	0	–	0.0226	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/ 46	0	–	0.458	–	1.55E+03	n	–	–	–	no
Dibenzofuran	0	/ 30	0	–	0.458	–	9.53E+02	n	–	–	–	no
Dibromomethane	0	/ 46	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/ 46	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/ 46	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/ 46	0	–	0.0226	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/ 46	0	–	0.0113	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/ 46	0	–	0.0113	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/ 46	0	–	0.0113	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/ 30	0	–	0.0113	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/ 46	0	–	0.0113	–	8.14E+02	n	–	–	–	no
Dichloromethane	4	/ 43	9.3	0.009	0.0069	–	1.06E+04	n	no	–	8.52E-07	no
1,2-Dichloropropane	0	/ 46	0	–	0.0113	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/ 46	0	–	0.0113	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/ 46	0	–	0.0113	–	5.10E+02	n	–	–	–	no
Ethanol	0	/ 16	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/ 46	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/ 46	0	–	0.0113	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/ 46	0	–	0.0226	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/ 46	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/ 46	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/ 46	0	–	0.0113	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/ 46	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/ 46	0	–	0.458	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/ 46	0	–	0.0113	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/ 46	0	–	0.0113	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/ 46	0	–	0.0113	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/ 46	0	–	0.0113	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/ 46	0	–	0.0113	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/ 46	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/ 46	0	–	0.458	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/ 46	0	–	0.0113	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/ 46	0	–	0.0452	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/ 46	0	–	0.0226	–	2.48E+02	c	–	–	–	no
Xylenes	0	/ 46	0	–	0.0113	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds												
Benzidine	0	/ 46	0	–	2.22 ^	–	7.20E-01	c	–	–	–	no

Table E.8-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Benzoic acid	0	/ 46	0	–	2.22	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/ 30	0	–	0.458	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0	/ 46	0	–	0.458	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/ 46	0	–	0.458	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	1	/ 46	2.17	0.4	0.458	–	4.76E+03	n	no	–	8.40E-05	no
4-Bromophenyl phenyl ether	0	/ 46	0	–	0.458	–	NA	n	–	–	–	no
p-Chloroaniline	0	/ 30	0	–	0.458	–	8.34E+02	c	–	–	–	no
4-Chloro-3-methylphenol	0	/ 46	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/ 46	0	–	0.458	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/ 46	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/ 46	0	–	0.458	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/ 46	0	–	0.458	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/ 46	0	–	0.458	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/ 46	0	–	2.22	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/ 46	0	–	0.458	–	4.76E+02	n	–	–	–	no
1,2-Diphenylhydrazine	0	/ 30	0	–	2.22	–	2.07E+02	c	–	–	–	no
Dimethyl phthalate	0	/ 46	0	–	0.458	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	1	/ 46	2.17	0.592	0.458	–	2.38E+04	n	no	–	2.49E-05	no
Di-n-octyl phthalate	0	/ 46	0	–	0.458	–	9.53E+03	n	–	–	–	no
Diphenylamine	0	/ 30	0	–	1.39	–	5.96E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/ 46	0	–	0.458	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/ 46	0	–	0.458	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/ 46	0	–	0.458	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/ 46	0	–	0.458	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/ 16	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/ 46	0	–	2.22	–	2.38E+01	n	–	–	–	no
2-Methylphenol	0	/ 30	0	–	0.458	–	1.19E+04	n	–	–	–	no
4-Methylphenol	0	/ 30	0	–	0.458	–	1.19E+03	n	–	–	–	no
2-Nitroaniline	0	/ 30	0	–	2.22	–	3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/ 30	0	–	2.22	–	3.88E+02	n	–	–	–	no
p-Nitroaniline	0	/ 30	0	–	2.22	–	9.37E+02	n	–	–	–	no
2-Nitrophenol	0	/ 46	0	–	0.458	–	NA	n	–	–	–	no
4-Nitrophenol	0	/ 46	0	–	2.22	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/ 46	0	–	0.458	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/ 46	0	–	0.458	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/ 46	0	–	2.22	–	1.03E+03	c	–	–	–	no
Phenol	0	/ 46	0	–	0.458	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/ 30	0	–	0.0113	–	4.76E+03	n	–	–	–	no
2,4,5-Trichlorophenol	0	/ 30	0	–	0.458	–	2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/ 46	0	–	0.458	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/ 46	0	–	0.458	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/ 46	0	–	0.458	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/ 43	0	–	0.458	–	1.34E+04	n	–	–	–	no
Anthracene	0	/ 46	0	–	0.458	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/ 46	0	–	0.458	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/ 46	0	–	0.458	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/ 46	0	–	0.458	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/ 46	0	–	0.458	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/ 46	0	–	0.458	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/ 46	0	–	0.458	–	2.06E+04	c	–	–	–	no
1-Chloronaphthalene	0	/ 30	0	–	0.458	–	2.48E+04	n	–	–	–	no
2-Chloronaphthalene	0	/ 46	0	–	0.458	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/ 46	0	–	0.458	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/ 46	0	–	0.458	–	8.91E+03	n	–	–	–	no
Fluorene	0	/ 46	0	–	0.458	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/ 46	0	–	0.458	–	2.13E+02	c	–	–	–	no

Table E.8-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
2-Methylnaphthalene	0	/ 30	0	–	0.458	–	8.91E+02	n	–	–	–	no
Naphthalene	0	/ 46	0	–	0.458	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/ 46	0	–	0.458	–	7.15E+03	n	–	–	–	no
Pyrene	0	/ 46	0	–	0.458	–	6.68E+03	n	–	–	–	no
Pesticides												
Aldrin	0	/ 15	0	–	0.0034	–	7.15E+00	n	–	–	–	no
alpha-BHC	0	/ 15	0	–	0.0034	–	2.63E+01	c	–	–	–	no
beta-BHC	0	/ 15	0	–	0.0034	–	9.19E+01	c	–	–	–	no
Camphechlor	0	/ 15	0	–	0.067	–	1.50E+02	c	–	–	–	no
Chlordane	0	/ 15	0	–	0.034	–	1.35E+02	n	–	–	–	no
4,4-DDD	0	/ 15	0	–	0.0067	–	6.95E+02	c	–	–	–	no
4,4-DDE	0	/ 15	0	–	0.0067	–	4.90E+02	c	–	–	–	no
4,4-DDT	0	/ 15	0	–	0.0067	–	1.42E+02	n	–	–	–	no
delta-BHC	0	/ 15	0	–	0.0034	–	8.30E+01	n	–	–	–	no
Dieldrin	0	/ 15	0	–	0.0067	–	1.03E+01	c	–	–	–	no
Endosulfan I	0	/ 15	0	–	0.0034	–	1.43E+03	n	–	–	–	no
Endosulfan II	0	/ 15	0	–	0.0067	–	1.43E+03	n	–	–	–	no
Endosulfan sulfate	0	/ 15	0	–	0.0067	–	1.43E+03	n	–	–	–	no
Endrin	0	/ 15	0	–	0.0067	–	7.15E+01	n	–	–	–	no
Endrin aldehyde	0	/ 15	0	–	0.0067	–	7.15E+01	n	–	–	–	no
gamma-BHC	0	/ 15	0	–	0.0034	–	8.30E+01	n	–	–	–	no
Heptachlor	0	/ 15	0	–	0.0034	–	3.68E+01	c	–	–	–	no
Heptachlor epoxide	0	/ 15	0	–	0.0034	–	3.10E+00	n	–	–	–	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	/ 15	0	–	0.034	–	1.19E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)												
Petroleum hydrocarbons	0	/ 16	0	–	13	–	NA	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)	0	/ 46	0	–	41.6	–	NA	n	–	–	–	no
Polychlorinated Biphenyls												
Aroclor 1221	0	/ 15	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1232	0	/ 15	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1242	0	/ 15	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor 1254	0	/ 15	0	–	0.034	–	4.36E+00	n	–	–	–	no
Aroclor 1260	0	/ 15	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor 1016	0	/ 15	0	–	0.034	–	1.53E+01	n	–	–	–	no
Aroclor 1248	0	/ 15	0	–	0.034	–	7.58E+01	c	–	–	–	no
Explosives												
2,6-Dinitrotoluene	0	/ 46	0	–	0.458	–	2.39E+02	n	–	–	–	no
Inorganics												
Arsenic	23	/ 45	51.1	9.64	3.47	no	6.54E+01	n	no	–	1.47E-01	no
Barium	33	/ 45	73.3	179	110	YES	4.35E+03	n	no	–	4.11E-02	no
Cadmium	0	/ 45	0	–	12.8	no	3.09E+02	n	–	–	–	no
Chromium	2	/ 38	5.26	19.3	34.7	no	4.49E+02	n	no	–	4.29E-02	no
Chromium (Hexavalent)	0	/ 36	0	–	6.41	no	4.49E+02	n	–	–	–	no
Lead	15	/ 45	33.3	14.7	27	no	8.00E+02	IEUBK	no	–	–	no
Mercury	3	/ 45	6.67	0.0474	0.1	YES	6.36E+01	n	no	–	7.45E-04	no
Selenium	0	/ 45	0	–	3.47	no	1.55E+03	n	–	–	–	no
Silver	12	/ 45	26.7	74.8	34.7	no	1.55E+03	n	no	–	4.83E-02	no
Total Maximum / Screening Level Ratios										NA	0.3	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)										NA	0.3	

Target Organ Max/SL Ratios	
Kidney and Liver	0.04
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.2

Table E.8-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
							Lungs		0.04	
							Gastrointestinal Tract and Forestomach		NA	
							Whole Body		0.00002	
							Blood		NA	
							Nervous System		NA	
							Dental		NA	
							Red Blood Cells		NA	
							Glands		NA	
							Fetus		0.04	
							Immune System		NA	
							Development		NA	
							Reproduction		NA	
							Bone		NA	
							Not Available/ Not Reported		NA	

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.8-HHRA-4
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	6	/	57	11	0.72	no
Acetophenone	0	/	6	0	–	no
Acrolein	0	/	48	0	–	no
Acrylonitrile	0	/	57	0	–	no
Benzene	0	/	57	0	–	no
Bis(2-chloroethyl)ether	0	/	54	0	–	no
Bis(2-chloroisopropyl)ether	0	/	54	0	–	no
Bromobenzene	0	/	9	0	–	no
Bromodichloromethane	0	/	40	0	–	no
Bromomethane	0	/	57	0	–	no
2-Butanone	0	/	57	0	–	no
tert-Butyl alcohol	0	/	9	0	–	no
n-Butylbenzene	0	/	9	0	–	no
sec-Butylbenzene	0	/	9	0	–	no
tert-Butylbenzene	0	/	9	0	–	no
Carbon disulfide	0	/	57	0	–	no
Carbon tetrachloride	0	/	57	0	–	no
CFC-11	0	/	57	0	–	no
CFC-12	0	/	26	0	–	no
Chlorobenzene	0	/	57	0	–	no
Chlorobromomethane	0	/	9	0	–	no
Chloroethane	0	/	57	0	–	no
2-Chloroethyl vinyl ether	0	/	57	0	–	no
Chloroform	0	/	57	0	–	no
Chloromethane	0	/	57	0	–	no
2-Chlorophenol	0	/	54	0	–	no
2-Chlorotoluene	0	/	9	0	–	no
4-Chlorotoluene	0	/	9	0	–	no
Cymene	0	/	9	0	–	no
Dibenzofuran	0	/	37	0	–	no
1,2-Dibromoethane	0	/	9	0	–	no
Dibromomethane	0	/	57	0	–	no
1,2-Dichlorobenzene	0	/	57	0	–	no
1,4-Dichlorobenzene	0	/	57	0	–	no
1,4 Dichloro-2-butene	0	/	48	0	–	no
trans-1,4-Dichlorobutene	0	/	9	0	–	no
1,1-Dichloroethane	0	/	57	0	–	no
1,2-Dichloroethane	0	/	57	0	–	no
1,1-Dichloroethylene	0	/	57	0	–	no
cis-1,2-Dichloroethene	0	/	40	0	–	no
trans-1,2-Dichloroethene	0	/	57	0	–	no
Dichloromethane	4	/	53	8	0.009	no
1,2-Dichloropropane	0	/	57	0	–	no
1,3-Dichloropropane	0	/	9	0	–	no
2,2-Dichloropropane	0	/	9	0	–	no
1,1-Dichloropropene	0	/	9	0	–	no
cis-1,3-Dichloropropene	0	/	57	0	–	no
trans-1,3-Dichloropropene	0	/	57	0	–	no
Ethyl methacrylate	0	/	48	0	–	no
Ethylbenzene	0	/	57	0	–	no
Iodomethane	0	/	57	0	–	no
Isopropylbenzene	0	/	9	0	–	no
m-Dichlorobenzene	0	/	57	0	–	no
Methyl n-butyl ketone	0	/	57	0	–	no
Methylbenzene	0	/	57	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	57	0	–	no

Table E.8-HHRA-4
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Methyl tert-butyl ether (MTBE)	0	/	9	0	–	no
Nitrobenzene	0	/	54	0	–	no
n-Propylbenzene	0	/	9	0	–	no
Styrene (monomer)	0	/	57	0	–	no
Tetrachloroethene	0	/	57	0	–	no
1,1,1,2-Tetrachloroethane	0	/	9	0	–	no
1,1,2,2-Tetrachloroethane	0	/	57	0	–	no
1,1,1-Trichloroethane	0	/	57	0	–	no
1,1,2-Trichloroethane	0	/	57	0	–	no
1,2,3-Trichlorobenzene	0	/	9	0	–	no
1,2,3-Trichloropropane	0	/	57	0	–	no
1,2,4-Trichlorobenzene	0	/	57	0	–	no
1,2,4-Trimethylbenzene	0	/	9	0	–	no
1,3,5-Trimethylbenzene	0	/	9	0	–	no
Trichloroethylene	0	/	57	0	–	no
Vinyl acetate	0	/	48	0	–	no
Vinyl chloride	0	/	57	0	–	no
m,p-Xylene	0	/	9	0	–	no
o-Xylene	0	/	9	0	–	no
Xylenes	0	/	48	0	–	no
Semi Volatile Organic Compounds						
n-Nitrosodi-n-butylamine	0	/	6	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	54	0	–	no
Acenaphthylene	0	/	50	0	–	no
Anthracene	0	/	54	0	–	no
1-Chloronaphthalene	0	/	37	0	–	no
2-Chloronaphthalene	0	/	54	0	–	no
Fluorene	0	/	54	0	–	no
1-Methylnaphthalene	0	/	6	0	–	no
2-Methylnaphthalene	0	/	37	0	–	no
Naphthalene	0	/	57	0	–	no
Phenanthrene	0	/	54	0	–	no

Notes:

– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway. Lab contaminants were not retained as COPCs for the vapor inhalation pathway if they are the only detected VOCs in soil.

Table E.8-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds									
Acetone	0 / 17	0	–	0.01	2.20E+02	n	–	–	–
Acetophenone	0 / 17	0	–	5	8.00E+02	n	–	–	–
Acrylonitrile	0 / 17	0	–	0.001	8.50E-02	c	–	–	–
Benzene	0 / 17	0	–	0.001	1.40E-02	c	–	–	–
Bis(2-chloroethyl)ether	0 / 17	0	–	5 ^	1.00E-01	c	–	–	–
Bis(2-chloroisopropyl)ether	0 / 17	0	–	5	NA	c	–	–	–
Bromobenzene	0 / 17	0	–	0.001	NA	n	–	–	–
Bromodichloromethane	0 / 17	0	–	0.001	2.10E-02	c	–	–	–
Bromomethane	0 / 17	0	–	0.005	2.00E-02	n	–	–	–
2-Butanone	0 / 17	0	–	0.005	4.40E+02	n	–	–	–
tert-Butyl alcohol	0 / 2	0	–	0.005	NA	n	–	–	–
n-Butylbenzene	0 / 17	0	–	0.001	2.60E-01	n	–	–	–
sec-Butylbenzene	0 / 17	0	–	0.001	2.50E-01	n	–	–	–
tert-Butylbenzene	0 / 17	0	–	0.001	2.90E-01	n	–	–	–
Carbon disulfide	0 / 17	0	–	0.001	5.60E-01	n	–	–	–
Carbon tetrachloride	0 / 17	0	–	0.001	5.00E-03	c	–	–	–
CFC-11	0 / 17	0	–	0.001	1.80E-01	n	–	–	–
CFC-12	0 / 17	0	–	0.001	1.40E-02	n	–	–	–
Chlorobenzene	0 / 17	0	–	0.001	3.90E-01	n	–	–	–
Chlorobromomethane	0 / 17	0	–	0.001	NA	n	–	–	–
Chloroethane	0 / 17	0	–	0.001	2.80E+01	n	–	–	–
2-Chloroethyl vinyl ether	0 / 17	0	–	0.005	NA	n	–	–	–
Chloroform	6 / 17	35.3	0.00219	0.001	8.00E-02	c	no	2.74E-02	–
Chloromethane	2 / 17	11.8	0.00191	0.001	6.70E-02	c	no	2.85E-02	–
2-Chlorophenol	0 / 17	0	–	5 ^	1.10E+00	n	–	–	–
2-Chlorotoluene	0 / 17	0	–	0.001	NA	n	–	–	–
4-Chlorotoluene	0 / 17	0	–	0.001	NA	n	–	–	–
Cymene	0 / 17	0	–	0.001	NA	n	–	–	–
Dibenzofuran	0 / 17	0	–	5	NA	n	–	–	–
1,2-Dibromoethane	0 / 17	0	–	0.001	3.60E-03	c	–	–	–
Dibromomethane	0 / 17	0	–	0.001	9.90E-01	n	–	–	–
1,2-Dichlorobenzene	0 / 17	0	–	0.005	2.60E+00	n	–	–	–
1,4-Dichlorobenzene	0 / 17	0	–	0.005	8.20E+00	c	–	–	–
trans-1,4-Dichlorobutene	0 / 17	0	–	0.01	NA	c	–	–	–
1,1-Dichloroethane	6 / 17	35.3	0.0019	0.001	2.20E+00	c	no	8.64E-04	–
1,2-Dichloroethane	0 / 17	0	–	0.001	2.30E-02	c	–	–	–
1,1-Dichloroethylene	0 / 17	0	–	0.001	1.90E-01	n	–	–	–
cis-1,2-Dichloroethene	0 / 17	0	–	0.001	2.10E-01	n	–	–	–
trans-1,2-Dichloroethene	0 / 17	0	–	0.001	1.80E-01	n	–	–	–
Dichloromethane	0 / 17	0	–	0.005	5.80E-01	c	–	–	–
1,2-Dichloropropane	0 / 17	0	–	0.001	3.50E-02	c	–	–	–
1,3-Dichloropropane	0 / 17	0	–	0.001	NA	n	–	–	–

Table E.8-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
2,2-Dichloropropane	0 / 17	0	–	0.001		NA	n	–	–	–
1,1-Dichloropropene	0 / 17	0	–	0.001		NA	c	–	–	–
cis-1,3-Dichloropropene	0 / 17	0	–	0.001		NA	c	–	–	–
trans-1,3-Dichloropropene	0 / 17	0	–	0.001		NA	c	–	–	–
Ethylbenzene	0 / 17	0	–	0.001		7.00E-01	c	–	–	–
Iodomethane	0 / 17	0	–	0.005		NA	n	–	–	–
Isopropylbenzene	0 / 17	0	–	0.001		8.40E-03	n	–	–	–
m-Dichlorobenzene	0 / 17	0	–	0.005		8.30E-01	n	–	–	–
Methyl n-butyl ketone	0 / 17	0	–	0.005		NA	n	–	–	–
Methylbenzene	0 / 17	0	–	0.001		1.50E+00	n	–	–	–
4-Methyl-2-pentanone (MIBK)	0 / 17	0	–	0.005		1.40E+01	n	–	–	–
Methyl tert-butyl ether (MTBE)	0 / 17	0	–	0.001		1.20E+02	c	–	–	–
Nitrobenzene	0 / 17	0	–	5	^	2.00E+00	c	–	–	–
n-Propylbenzene	0 / 17	0	–	0.001		3.20E-01	n	–	–	–
Styrene (monomer)	0 / 17	0	–	0.001		8.90E+00	n	–	–	–
Tetrachloroethene	0 / 17	0	–	0.001		1.10E-02	c	–	–	–
1,1,1,2-Tetrachloroethane	0 / 17	0	–	0.001		3.30E-02	c	–	–	–
1,1,2,2-Tetrachloroethane	0 / 17	0	–	0.001		3.00E-02	c	–	–	–
1,1,1-Trichloroethane	0 / 17	0	–	0.001		3.10E+00	n	–	–	–
1,1,2-Trichloroethane	0 / 17	0	–	0.001		4.10E-02	c	–	–	–
1,2,3-Trichlorobenzene	0 / 17	0	–	0.005		NA	n	–	–	–
1,2,3-Trichloropropane	0 / 17	0	–	0.001		2.90E-01	c	–	–	–
1,2,4-Trichlorobenzene	0 / 17	0	–	0.005		3.40E+00	n	–	–	–
1,2,4-Trimethylbenzene	0 / 17	0	–	0.001		2.40E-02	n	–	–	–
1,3,5-Trimethylbenzene	0 / 17	0	–	0.001		2.50E-02	n	–	–	–
Trichloroethylene	6 / 17	35.3	0.0438	0.001		5.00E-03	c	YES	8.76E+00	–
Vinyl chloride	0 / 17	0	–	0.001		2.50E-03	c	–	–	–
m,p-Xylene	0 / 17	0	–	0.001		2.30E+01	n	–	–	–
o-Xylene	0 / 17	0	–	0.001		3.30E+01	n	–	–	–
Semi Volatile Organic Compounds										
n-Nitrosodi-n-butylamine	0 / 17	0	–	5	^	1.20E-03	c	–	–	–
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	0 / 17	0	–	5		NA	n	–	–	–
Acenaphthylene	0 / 17	0	–	5		NA	n	–	–	–
Anthracene	0 / 17	0	–	5		NA	n	–	–	–
1-Chloronaphthalene	0 / 17	0	–	5		NA	n	–	–	–
2-Chloronaphthalene	0 / 17	0	–	5		NA	n	–	–	–
Fluorene	0 / 17	0	–	5		NA	n	–	–	–
1-Methylnaphthalene	0 / 17	0	–	5		NA	c	–	–	–
2-Methylnaphthalene	0 / 17	0	–	5	^	3.30E+00	n	–	–	–
Naphthalene	0 / 17	0	–	0.005		1.50E-01	c	–	–	–
Phenanthrene	0 / 17	0	–	5		NA	n	–	–	–

Table E.8-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios							9	NA
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)							9.E-05	NA
						Target Organ Max/SL Ratios		
						Kidney and Liver		NA
						Brain		NA
						Nasal		NA
						Eyes		NA
						Skin		NA
						Lungs		NA
						Gastrointestinal Tract and Forestomach		NA
						Whole Body		NA
						Blood		NA
						Nervous System		NA
						Dental		NA
						Red Blood Cells		NA
						Glands		NA
						Fetus		NA
						Immune System		NA
						Development		NA
						Reproduction		NA
						Bone		NA
						Not Available/ Not Reported		NA

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

Table E.8-HHRA-6
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds										
Acetone	0 / 17	0	–		2.20E+02	n	–	–	–	no
Acetophenone	0 / 17	0	–		8.00E+02	n	–	–	–	no
Acrylonitrile	0 / 17	0	–		8.50E-02	c	–	–	–	no
Benzene	0 / 17	0	–		1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0 / 17	0	–		1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0 / 17	0	–		NA	c	–	–	–	no
Bromobenzene	0 / 17	0	–		NA	n	–	–	–	no
Bromodichloromethane	0 / 17	0	–		2.10E-02	c	–	–	–	no
Bromomethane	0 / 17	0	–		2.00E-02	n	–	–	–	no
2-Butanone	0 / 17	0	–		4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0 / 2	0	–		NA	n	–	–	–	no
n-Butylbenzene	0 / 17	0	–		2.60E-01	n	–	–	–	no
sec-Butylbenzene	0 / 17	0	–		2.50E-01	n	–	–	–	no
tert-Butylbenzene	0 / 17	0	–		2.90E-01	n	–	–	–	no
Carbon disulfide	0 / 17	0	–		5.60E-01	n	–	–	–	no
Carbon tetrachloride	0 / 17	0	–		5.00E-03	c	–	–	–	no
CFC-11	0 / 17	0	–		1.80E-01	n	–	–	–	no
CFC-12	0 / 17	0	–		1.40E-02	n	–	–	–	no
Chlorobenzene	0 / 17	0	–		3.90E-01	n	–	–	–	no
Chlorobromomethane	0 / 17	0	–		NA	n	–	–	–	no
Chloroethane	0 / 17	0	–		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0 / 17	0	–		NA	n	–	–	–	no
Chloroform	6 / 17	35.3	0.00165		8.00E-02	c	no	2.06E-02	–	yes
Chloromethane	2 / 17	11.8	0.00191	m	6.70E-02	c	no	2.85E-02	–	yes
2-Chlorophenol	0 / 17	0	–		1.10E+00	n	–	–	–	no
2-Chlorotoluene	0 / 17	0	–		NA	n	–	–	–	no
4-Chlorotoluene	0 / 17	0	–		NA	n	–	–	–	no
Cymene	0 / 17	0	–		NA	n	–	–	–	no
Dibenzofuran	0 / 17	0	–		NA	n	–	–	–	no
1,2-Dibromoethane	0 / 17	0	–		3.60E-03	c	–	–	–	no
Dibromomethane	0 / 17	0	–		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0 / 17	0	–		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0 / 17	0	–		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0 / 17	0	–		NA	c	–	–	–	no
1,1-Dichloroethane	6 / 17	35.3	0.00172		2.20E+00	c	no	7.82E-04	–	yes
1,2-Dichloroethane	0 / 17	0	–		2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0 / 17	0	–		1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0 / 17	0	–		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0 / 17	0	–		1.80E-01	n	–	–	–	no
Dichloromethane	0 / 17	0	–		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0 / 17	0	–		3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0 / 17	0	–		NA	n	–	–	–	no

Table E.8-HHRA-6
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
2,2-Dichloropropane	0	/	17	0	–	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	17	0	–	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	17	0	–	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	17	0	–	NA	c	–	–	–	no
Ethylbenzene	0	/	17	0	–	7.00E-01	c	–	–	–	no
Iodomethane	0	/	17	0	–	NA	n	–	–	–	no
Isopropylbenzene	0	/	17	0	–	8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	17	0	–	8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	17	0	–	NA	n	–	–	–	no
Methylbenzene	0	/	17	0	–	1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	17	0	–	1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	17	0	–	1.20E+02	c	–	–	–	no
Nitrobenzene	0	/	17	0	–	2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/	17	0	–	3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	17	0	–	8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	17	0	–	1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	17	0	–	3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	17	0	–	3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	17	0	–	3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	17	0	–	4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	17	0	–	NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	17	0	–	2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	17	0	–	3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	17	0	–	2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	17	0	–	2.50E-02	n	–	–	–	no
Trichloroethylene	6	/	17	35.3	0.0357	5.00E-03	c	YES	7.14E+00	–	yes
Vinyl chloride	0	/	17	0	–	2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	17	0	–	2.30E+01	n	–	–	–	no
o-Xylene	0	/	17	0	–	3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds											
n-Nitrosodi-n-butylamine	0	/	17	0	–	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	0	/	17	0	–	NA	n	–	–	–	no
Acenaphthylene	0	/	17	0	–	NA	n	–	–	–	no
Anthracene	0	/	17	0	–	NA	n	–	–	–	no
1-Chloronaphthalene	0	/	17	0	–	NA	n	–	–	–	no
2-Chloronaphthalene	0	/	17	0	–	NA	n	–	–	–	no
Fluorene	0	/	17	0	–	NA	n	–	–	–	no
1-Methylnaphthalene	0	/	17	0	–	NA	c	–	–	–	no
2-Methylnaphthalene	0	/	17	0	–	3.30E+00	n	–	–	–	no
Naphthalene	0	/	17	0	–	1.50E-01	c	–	–	–	no
Phenanthrene	0	/	17	0	–	NA	n	–	–	–	no

Table E.8-HHRA-6
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Total Maximum / Screening Level Ratios						7	NA	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)						7.E-05	NA	
					Target Organ Max/SL Ratios			
					Kidney and Liver		NA	
					Brain		NA	
					Nasal		NA	
					Eyes		NA	
					Skin		NA	
					Lungs		NA	
					Gastrointestinal Tract and Forestomach		NA	
					Whole Body		NA	
					Blood		NA	
					Nervous System		NA	
					Dental		NA	
					Red Blood Cells		NA	
					Glands		NA	
					Fetus		NA	
					Immune System		NA	
					Development		NA	
					Reproduction		NA	
					Bone		NA	
					Not Available/ Not Reported		NA	

Notes:

– = Not applicable.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.

[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.8-HHRA-7
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit SWMU 141 (SWMU SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Chloroform	no	no	no	no	yes	–	–	–	1.65E-03
Chloromethane	no	no	no	no	yes	–	–	–	1.91E-03 m
1,1-Dichloroethane	no	no	no	no	yes	–	–	–	1.72E-03
Trichloroethylene	no	no	no	no	yes	–	–	–	3.57E-02

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.8-HHRA-8
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Groundwater Concentration C_W (µg/L)	Chemical
67663	1.65	Chloroform
74873	1.91	Chloromethane
75343	1.72	1,1-Dichloroethane
79016	35.7	Trichloroethylene

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
16.7	15	579	579	0	0	A	SIL	SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3) (Lookup Soil Parameters)	(Lookup Soil Parameters)
SIL	1.55	0.440	0.26	

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)
10	40	1000	1000	244	0.1	0.25

Table E.8-HHRA-9
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical Name	Enthalpy of vaporization at ave. gw temp $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. gw temp H_{TS} (atm-m^3/mol)	Henry's law constant at ave. gw temp H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Chloroform	7,638	2.54E-03	1.07E-01	1.77E-04	1.78E-03	2.00E-04	9.12E-04	1.76E+02	1.65E+00	1.78E-03	1.11E+10	4.96E-05	8.73E-03
Chloromethane	4,405	7.13E-03	3.00E-01	1.77E-04	2.16E-03	2.28E-04	1.07E-03	5.72E+02	1.65E+00	2.16E-03	2.05E+08	5.34E-05	3.06E-02
1,1-Dichloroethane	7,492	3.91E-03	1.65E-01	1.77E-04	1.27E-03	1.42E-04	6.49E-04	2.83E+02	1.65E+00	1.27E-03	1.20E+14	4.14E-05	1.17E-02
Trichloroethylene	8,501	6.83E-03	2.87E-01	1.77E-04	1.35E-03	1.46E-04	6.76E-04	1.03E+04	1.65E+00	1.35E-03	1.76E+13	4.24E-05	4.35E-01

Table E.11-HHRA-10

Estimates of Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water

Solid Waste Managment Unit 141 (SWMU 141)

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Constituent	**Exposure Point Concentration in Saturated Vadose Zone Soil Water (EPCgw) [a] (mg/L)**	**Exposure Point Concentration in Indoor Air Due to Saturated Vadose Zone Soil Water (EPCair_gw) [b] (µg/m^3)**
Volatile Organic Compounds		
Chloroform	1.65E-03	8.73E-03
Chloromethane	1.91E-03 m	3.06E-02
1,1-Dichloroethane	1.72E-03	1.17E-02
Trichloroethylene	3.57E-02	4.35E-01

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

µg/m^3 Micrograms per cubic meter.

mg/L Milligrams per liter.

m Maximum.

[a] EPCs are presented in table Table E.11-HHRA-7.

[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a,b), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.11-HHRA-11
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 141 (SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Current/ Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
			ELCRi			HQi	
Volatile Organic Compounds							
Chloroform	8.73E-03	2.30E-02	1.5E-08	18%	9.8E-02	2E-05	21%
Chloromethane	3.06E-02	NA	NA	–	9.0E-02	7E-05	79%
1,1-Dichloroethane	1.17E-02	1.60E-03	1.4E-09	2%	NA	NA	–
Trichloroethylene	4.35E-01	2.00E-03	6.4E-08	80%	NA	NA	–
		Total ELCR	8E-08	100%	Total HI	0.00009	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.00002	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.00009	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	NA

[a] From Table E.11-HHRA-10.

—	Not applicable.	HQ	Hazard quotient for non-cancer effects.
URF	Unit risk factor	mg/kg/day	Milligrams per kilogram per day.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.11-HHRA-12
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 141 (SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
			ELCRi			HQi	
Volatile Organic Compounds							
Chloroform	8.73E-03	2.30E-02	8.3E-08	18%	9.8E-02	9E-05	21%
Chloromethane	3.06E-02	NA	NA	–	9.0E-02	3E-04	79%
1,1-Dichloroethane	1.17E-02	1.60E-03	7.7E-09	2%	NA	NA	–
Trichloroethylene	4.35E-01	2.00E-03	3.6E-07	80%	NA	NA	–
		Total ELCR	4E-07	100%	Total HI	0.0004	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.00009	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.0004	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	NA

[a] From Table E.11-HHRA-10.

—	Not applicable.	HQ	Hazard quotient for non-cancer effects.
URF	Unit risk factor	mg/kg/day	Milligrams per kilogram per day.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.11-HHRA-13
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 141 (SWMU 141)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Excess Lifetime Cancer Risk and Total non-cancer Hazard Index

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Vapor Migration to Indoor Air	8E-08	0.00009
TOTAL SITE RISKS:	8E-08	0.00009
Hypothetical Future Resident Receptor (Adult and Child)		
Vapor Migration to Indoor Air	4E-07	0.0004
TOTAL SITE RISKS:	4E-07	0.0004

NA Not applicable or available.

Table E.8.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	11	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	11	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	11	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	11	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	11	0	–	0.411		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	11	0	–	0.411		no	NA		NA	no	ND
Bromodichloromethane	0	/	10	0	–	0.00623		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	11	0	–	0.0125		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	11	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	11	0	–	0.00623		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	11	0	–	0.00623		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	11	0	–	0.0125		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	1	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	11	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	11	0	–	0.00623		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	11	0	–	0.0125		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	11	0	–	0.0125		no	NA		NA	no	ND
Chloroform	0	/	11	0	–	0.00623	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	11	0	–	0.0125		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	11	0	–	0.411	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0	/	10	0	–	0.411		no	600	*R4s*	NA	no	ND
Dibromomethane	0	/	11	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	11	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	11	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	11	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	11	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	11	0	–	0.00623		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	11	0	–	0.00623		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	11	0	–	0.00623		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	10	0	–	0.00623		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	11	0	–	0.00623		no	0.784	*R5*	NA	no	ND
Dichloromethane	1	/	10	10	0.00846	0.00623		no	2	*R4*	0.004	no	HQ ≤ 1
1,2-Dichloropropane	0	/	11	0	–	0.00623		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	11	0	–	0.00623		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	11	0	–	0.00623		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	1	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	11	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	11	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	11	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	11	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	11	0	–	0.00623		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	11	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	11	0	–	0.411		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	11	0	–	0.00623		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	11	0	–	0.00623		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	11	0	–	0.00623		no	0.127	*R5*	NA	no	ND

Table E.8.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,1,1-Trichloroethane	0	/	11	0	–	0.00623		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	11	0	–	0.00623		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	11	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	11	0	–	0.411		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	11	0	–	0.00623	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	11	0	–	0.0249		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	11	0	–	0.0125	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	11	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	11	0	–	1.99		no	NA		NA	no	ND
Benzoic acid	0	/	11	0	–	2		no	NA		NA	no	ND
Benzyl alcohol	0	/	10	0	–	0.411		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	11	0	–	0.411	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	11	0	–	0.411	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	11	0	–	0.411		no	NA		NA	no	ND
p-Chloroaniline	0	/	10	0	–	0.411		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	11	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	11	0	–	0.411		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	11	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	11	0	–	0.411		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	11	0	–	0.411		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	11	0	–	0.411	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	11	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	11	0	–	0.411		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/	10	0	–	1.99		no	NA		NA	no	ND
Dimethyl phthalate	0	/	11	0	–	0.411		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	11	0	–	0.411		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	11	0	–	0.411		no	709	*R5*	NA	no	ND
Diphenylamine	0	/	10	0	–	1.24	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	11	0	–	0.411	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	11	0	–	0.411	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	11	0	–	0.411		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	11	0	–	0.411		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	^	no	0.0000321	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	11	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	10	0	–	0.411		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	10	0	–	0.411		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	10	0	–	1.99		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	10	0	–	1.99		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	10	0	–	1.99		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	11	0	–	0.411		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	11	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	11	0	–	0.411		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	11	0	–	0.411		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	11	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	11	0	–	0.411		no	120	*R5*	NA	no	ND

Table E.8.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Tribromomethane	0	/	10	0	–	0.00846		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	10	0	–	0.411		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	11	0	–	0.411		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	11	0	–	0.411		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	11	0	–	0.411		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	10	0	–	0.411		no	682	*R5*	NA	no	ND
Anthracene	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	11	0	–	0.411		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	11	0	–	0.411	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	11	0	–	0.411		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	11	0	–	0.411		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	11	0	–	0.411		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	10	0	–	0.411	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	11	0	–	0.411	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	11	0	–	0.411		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	11	0	–	0.411		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	11	0	–	0.411		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	10	0	–	0.411		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	11	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Pesticides													
Aldrin	0	/	1	0	–	0.0034	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	1	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	1	0	–	0.0034		no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	1	0	–	0.067		no	0.119	*R5*	NA	no	ND
Chlordane	0	/	1	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	1	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	1	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	1	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	1	0	–	0.0034		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	1	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	1	0	–	0.0034		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	1	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	1	0	–	0.0067	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	1	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	1	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	1	0	–	0.0034		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	1	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	1	0	–	0.0034		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxpheny	0	/	1	0	–	0.034	^	no	0.0199	*R5*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	1	0	–	10		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	11	0	–	37.3		no	10,000	*API*	NA	no	ND

Table E.8.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Polychlorinated Biphenyls													
Aroclor 1221	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1016	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1248	0	/	1	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	11	0	–	0.411	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	7	/	11	63.6	8.56	3.12		no	18	*EcoSSL*	0.5	no	HQ ≤ 1
Barium	10	/	11	90.9	112	92		YES	330	*EcoSSL*	0.3	no	≤ BKGD
Cadmium	0	/	11	0	–	6.23	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	1	/	13	7.69	6.4	31.2		no	26	*EcoSSL*	0.2	no	HQ ≤ 1
Chromium (Hexavalent)	0	/	12	0	–	1.25		no	130	*EcoSSL*	NA	no	ND
Lead	9	/	11	81.8	8.17	23		no	11	*EcoSSL*	0.7	no	HQ ≤ 1
Mercury	2	/	11	18.2	0.0474	0.1		YES	0.1	*R4*	0.5	no	≤ BKGD
Selenium	0	/	11	0	–	3.12	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	4	/	11	36.4	72.4	31.2		no	4.2	*EcoSSL*	20	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.8.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	6	/	46	13	0.72	0.1		no	2.5	*R5*	0.3	no	HQ ≤ 1
Acrolein	0	/	46	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	46	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	46	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	46	0	–	0.458		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	46	0	–	0.458		no	NA		NA	no	ND
Bromodichloromethane	0	/	30	0	–	0.0113		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	46	0	–	0.0226		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	46	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	46	0	–	0.0113		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	46	0	–	0.0113		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	46	0	–	0.0226		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	16	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	46	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	46	0	–	0.0113		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	46	0	–	0.0226		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	46	0	–	0.0226		no	NA		NA	no	ND
Chloroform	0	/	46	0	–	0.0113	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	46	0	–	0.0226		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	46	0	–	0.458	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0	/	30	0	–	0.458		no	600	*R4s*	NA	no	ND
Dibromomethane	0	/	46	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	46	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	46	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	46	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	46	0	–	0.0226		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	46	0	–	0.0113		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	46	0	–	0.0113		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	46	0	–	0.0113		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	30	0	–	0.0113		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	46	0	–	0.0113		no	0.784	*R5*	NA	no	ND
Dichloromethane	4	/	43	9.3	0.009	0.0069		no	2	*R4*	0.005	no	HQ ≤ 1
1,2-Dichloropropane	0	/	46	0	–	0.0113		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	46	0	–	0.0113		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	46	0	–	0.0113		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	16	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	46	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	46	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	46	0	–	0.0226		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	46	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	46	0	–	0.0113		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	46	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	46	0	–	0.458		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	46	0	–	0.0113		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	46	0	–	0.0113		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	46	0	–	0.0113		no	0.127	*R5*	NA	no	ND

Table E.8.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,1,1-Trichloroethane	0	/ 46	0	–	0.0113		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/ 46	0	–	0.0113		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/ 46	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/ 46	0	–	0.458		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/ 46	0	–	0.0113	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/ 46	0	–	0.0452		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/ 46	0	–	0.0226	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/ 46	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds												
Benzidine	0	/ 46	0	–	2.22		no	NA		NA	no	ND
Benzoic acid	0	/ 46	0	–	2.22		no	NA		NA	no	ND
Benzyl alcohol	0	/ 30	0	–	0.458		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/ 46	0	–	0.458	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/ 46	0	–	0.458	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	1	/ 46	2.17	0.4	0.458		no	0.1	*R4*	4	**YES**	HQ > 1
4-Bromophenyl phenyl ether	0	/ 46	0	–	0.458		no	NA		NA	no	ND
p-Chloroaniline	0	/ 30	0	–	0.458		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/ 46	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/ 46	0	–	0.458		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/ 46	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/ 46	0	–	0.458		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/ 46	0	–	0.458		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/ 46	0	–	0.458	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/ 46	0	–	2.22		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/ 46	0	–	0.458		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/ 30	0	–	2.22		no	NA		NA	no	ND
Dimethyl phthalate	0	/ 46	0	–	0.458		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	1	/ 46	2.17	0.592	0.458		no	200	*R4*	0.003	no	HQ ≤ 1
Di-n-octyl phthalate	0	/ 46	0	–	0.458		no	709	*R5*	NA	no	ND
Diphenylamine	0	/ 30	0	–	1.39	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/ 46	0	–	0.458	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/ 46	0	–	0.458	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/ 46	0	–	0.458		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/ 46	0	–	0.458		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/ 16	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/ 46	0	–	2.22	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/ 30	0	–	0.458		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/ 30	0	–	0.458		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/ 30	0	–	2.22		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/ 30	0	–	2.22		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/ 30	0	–	2.22		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/ 46	0	–	0.458		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/ 46	0	–	2.22		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/ 46	0	–	0.458		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/ 46	0	–	0.458		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/ 46	0	–	2.22	^	no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/ 46	0	–	0.458		no	120	*R5*	NA	no	ND

Table E.8.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Tribromomethane	0	/	30	0	–	0.0113		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	30	0	–	0.458		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	46	0	–	0.458		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	46	0	–	0.458		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	46	0	–	0.458		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	43	0	–	0.458		no	682	*R5*	NA	no	ND
Anthracene	0	/	46	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	46	0	–	0.458		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	46	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	46	0	–	0.458	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	46	0	–	0.458		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	46	0	–	0.458		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	46	0	–	0.458		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	30	0	–	0.458	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	46	0	–	0.458	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	46	0	–	0.458		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	46	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	46	0	–	0.458		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	46	0	–	0.458		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	30	0	–	0.458		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	46	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	46	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	46	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Pesticides													
Aldrin	0	/	15	0	–	0.0034	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	15	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	15	0	–	0.0034		no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	15	0	–	0.067		no	0.119	*R5*	NA	no	ND
Chlordane	0	/	15	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	15	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	15	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	15	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	15	0	–	0.0034		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	15	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	15	0	–	0.0034		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	15	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	15	0	–	0.0067	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	15	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	15	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	15	0	–	0.0034		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	15	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	15	0	–	0.0034		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-et	0	/	15	0	–	0.034	^	no	0.0199	*R5*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	16	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	46	0	–	41.6		no	10,000	*API*	NA	no	ND

Table E.8.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Polychlorinated Biphenyls													
Aroclor 1221	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1016	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1248	0	/	15	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	46	0	–	0.458	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	23	/	45	51.1	9.64	3.47		no	18	*EcoSSL*	0.5	no	HQ ≤ 1
Barium	33	/	45	73.3	179	110		YES	330	*EcoSSL*	0.5	no	≤ BKGD
Cadmium	0	/	45	0	–	12.8	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	2	/	38	5.26	19.3	34.7		no	26	*EcoSSL*	0.7	no	HQ ≤ 1
Chromium (Hexavalent)	0	/	36	0	–	6.41		no	130	*EcoSSL*	NA	no	ND
Lead	15	/	45	33.3	14.7	27		no	11	*EcoSSL*	1	no	HQ ≤ 1
Mercury	3	/	45	6.67	0.0474	0.1		YES	0.1	*R4*	0.5	no	≤ BKGD
Selenium	0	/	45	0	–	3.47	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	12	/	45	26.7	74.8	34.7		no	4.2	*EcoSSL*	20	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.8.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Silver	72.4	m	4.2	*EcoSSL*	20	**YES**	**HQ > 1**	YES

Notes:
BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

Table E.8.ERA-4
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Semi Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	0.4	m	0.1	*R4*	4	**YES**	**HQ > 1**	no
Inorganics								
Silver	23.26		4.2	*EcoSSL*	6	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.8.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]					
	BERA COPEC?		0-2 ft bgs			0-10 ft bgs		
	0-2 ft bgs	0-10 ft bgs	Maximum		Refined	Maximum		Refined
Constituent			**Scenario**		**Scenario**	**Scenario**		**Scenario**
Semi Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	no	YES	NA		NA	0.4	m	0.193
Inorganics								
Silver	YES	YES	72.4	m	24	23.26		17.9

Notes:

BERA = Baseline Ecological Risk Assessment.

COPEC = Constituent of Potential Ecological Concern.

ft bgs = Feet below ground surface.

mg/kg = Milligrams per kilogram.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.8.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.68E-03	1.22E-01	0.23	6	0.6	0.04	0.4

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Silver	24	3.42E-01	1.68E-03	8.20E+00	4.03E-02	0.13	6	0.6	0.02	0.2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	3.42E-01	2.47E+01	30	6	0.6	5	50

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	24	3.42E-01	8.20E+00	10	6	0.6	2	17

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.28E-03	9.27E-02	0.082	6	0.6	0.01	0.1

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Silver	24	3.42E-01	1.68E-03	1.28E-03	8.20E+00	4.03E-02	3.07E-02	0.000013	6	0.6	0.000002	0.00002

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentratior EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	23.26	1.28E-03	2.98E-02	0.026	6	0.6	0.004	0.04

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Silver	17.9	3.42E-01	1.68E-03	1.28E-03	6.11E+00	3.01E-02	2.29E-02	0.0000095	6	0.6	0.000002	0.00002

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.68E-03	1.22E-01	0.39	2.02	0.202	0.2	2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Silver	24	3.42E-01	1.68E-03	8.20E+00	4.03E-02	0.00032	2.02	0.202	0.0002	0.002

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	3.42E-01	2.47E+01	28	2.02	0.202	14	139

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalcu
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Silver	24	3.42E-01	1.68E-03	8.20E+00	4.03E-02	1.6	2.02	0.202	0.8	8

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b] Mammal	Estimated Dietary Tissue Concentrations [c] (mg/kg) Mammal	Maximum Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day LOAEL	NOAEL	Maximum Scenario HQ [f] LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.28E-03	9.27E-02	0.1	2.02	0.202	0.05	0.5

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalc
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	24	1.28E-03	3.07E-02	0.000014	2.02	0.202	0.000007	0.00007

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.8.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil			BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection		EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples		(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics																		
Silver	4	- 11	24	20	EcoSSL	avi	0.02	0.2	**2**	**17**	0.000002	0.00002	0.0002	0.002	0.8	**8**	0.000007	0.00007

Notes:

EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.8.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Inorganics									
Silver	12	-	45	17.9	6	EcoSSL	avi	0.000002	0.00002

Notes:

EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.

ESL = Ecological Screening Critiera.

LOAEL = Lowest observed adverse effect level.

mg/kg = Milligrams per kilogram.

NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.

[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.9.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrolein	0	-	1	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromodichloromethane	0	-	6	0	–	-	–	0.005	-	0.625	–	0.0796	–
Bromomethane	0	-	7	0	–	-	–	0.005	-	1.25	–	0.136	–
2-Butanone	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Carbon disulfide	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Carbon tetrachloride	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
CFC-11	0	-	6	0	–	-	–	0.01	-	1.25	–	0.132	–
CFC-12	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorinated fluorocarbon (Freon 113)	0	-	5	0	–	-	–	0.25	-	6.25	–	1.33	–
Chlorobenzene	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
Chlorodibromomethane	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
Chloroethane	0	-	7	0	–	-	–	0.01	-	1.25	–	0.137	–
2-Chloroethyl vinyl ether	0	-	7	0	–	-	–	0.01	-	1.25	–	0.137	–
Chloroform	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
Chloromethane	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Dibromomethane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	-	5	0	–	-	–	0.025	-	1.25	–	0.158	–
1,4-Dichlorobenzene	0	-	6	0	–	-	–	0.025	-	1.25	–	0.156	–
1,4 Dichloro-2-butene	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	1	-	7	14.3	1.4	-	1.4	0.005	-	0.625	South Bore #2(3/23/1990)	0.251	–
1,2-Dichloroethane	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
1,1-Dichloroethylene	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
cis-1,2-Dichloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
Dichloromethane	0	-	7	0	–	-	–	0.005	-	1.25	–	0.137	–
1,2-Dichloropropane	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
cis-1,3-Dichloropropene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
Ethanol	0	-	1	0	–	-	–	1	-	1	–	0.5	–

Table E.9.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethyl methacrylate	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Iodomethane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Methyl n-butyl ketone	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
1,1,1-Trichloroethane	2	-	7	28.6	0.055	-	1.2	0.005	-	0.625	South Bore #2(3/23/1990)	0.228	–
1,1,2-Trichloroethane	0	-	7	0	–	-	–	0.005	-	0.625	–	0.0686	–
1,2,3-Trichloropropane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	7	0	–	-	–	0.01	-	1.25	–	0.137	–
Xylenes	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	1	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	1	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.9.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Hexachlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Tribromomethane	0	-	6	0	–	-	–	0.005	-	0.625	–	0.0796	–
2,4,6-Trichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Explosives													
2,6-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													

Table E.9.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Arsenic	4	-	6	66.7	13	-	53	0.45	-	0.61	East Bore #3(3/21/1990)	16.6	–
Barium	4	-	6	66.7	120	-	330	91	-	92	North Bore #4(3/23/1990)	139	–
Cadmium	4	-	6	66.7	1	-	1.8	2.3	-	2.3	North Bore #4(3/23/1990)	1.3	–
Chromium	4	-	5	80	2	-	4.8	4.5	-	4.5	North Bore #4(3/23/1990)	3.27	–
Chromium (Hexavalent)	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Lead	4	-	6	66.7	10	-	18	0.61	-	23	North Bore #4(3/23/1990)	11.6	–
Mercury	0	-	6	0	–	-	–	0.02	-	0.09	–	0.0162	–
Selenium	4	-	6	66.7	23	-	73	0.45	-	0.61	South Bore #2(3/19/1990)	32.4	–
Silver	0	-	1	0	–	-	–	4.6	-	4.6	–	2.3	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.9.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	12	0	–	-	–	0.1	-	0.14	–	0.055	–
Acrolein	0	-	3	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	12	0	–	-	–	0.005	-	0.007	–	0.00279	–
Bis(2-chloroethyl)ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bis(2-chloroisopropyl)ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bromodichloromethane	0	-	20	0	–	-	–	0.005	-	0.625	–	0.0738	–
Bromomethane	0	-	23	0	–	-	–	0.005	-	1.25	–	0.128	–
2-Butanone	0	-	12	0	–	-	–	0.1	-	0.14	–	0.055	–
Carbon disulfide	0	-	12	0	–	-	–	0.005	-	0.007	–	0.00279	–
Carbon tetrachloride	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
CFC-11	0	-	14	0	–	-	–	0.01	-	1.25	–	0.172	–
CFC-12	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorinated fluorocarbon (Freon 113)	0	-	11	0	–	-	–	0.25	-	6.25	–	1.49	–
Chlorobenzene	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
Chlorodibromomethane	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
Chloroethane	0	-	23	0	–	-	–	0.01	-	1.25	–	0.129	–
2-Chloroethyl vinyl ether	0	-	23	0	–	-	–	0.01	-	1.25	–	0.129	–
Chloroform	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
Chloromethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.188	–
Dibenzofuran	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
Dibromomethane	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	-	11	0	–	-	–	0.025	-	1.25	–	0.217	–
1,4-Dichlorobenzene	0	-	18	0	–	-	–	0.025	-	1.25	–	0.205	–
1,4 Dichloro-2-butene	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	1	-	23	4.35	1.4	-	1.4	0.005	-	1.25	South Bore #2(3/23/1990)	0.134	–
1,2-Dichloroethane	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
1,1-Dichloroethylene	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
cis-1,2-Dichloroethene	0	-	9	0	–	-	–	0.005	-	0.007	–	0.00289	–
trans-1,2-Dichloroethene	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
Dichloromethane	0	-	23	0	–	-	–	0.005	-	1.25	–	0.129	–
1,2-Dichloropropane	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
cis-1,3-Dichloropropene	0	-	12	0	–	-	–	0.005	-	0.007	–	0.00279	–
trans-1,3-Dichloropropene	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–

Table E.9.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethanol	0	-	3	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	12	0	–	-	–	0.005	-	0.007	–	0.00279	–
Iodomethane	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Methyl n-butyl ketone	0	-	12	0	–	-	–	0.05	-	0.071	–	0.0277	–
Methylbenzene	0	-	12	0	–	-	–	0.005	-	0.007	–	0.00279	–
4-Methyl-2-pentanone (MIBK)	0	-	12	0	–	-	–	0.05	-	0.071	–	0.0277	–
Methyl tert-butyl ether (MTBE)	0	-	4	0	–	-	–	0.006	-	0.007	–	0.00338	–
Nitrobenzene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	12	0	–	-	–	0.005	-	0.007	–	0.00279	–
Tetrachloroethene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
1,1,1-Trichloroethane	3	-	23	13	0.055	-	1.2	0.005	-	0.625	South Bore #2(3/23/1990)	0.116	–
1,1,2-Trichloroethane	0	-	23	0	–	-	–	0.005	-	0.625	–	0.0645	–
1,2,3-Trichloropropane	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Trichloroethylene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	12	0	–	-	–	0.01	-	0.014	–	0.0055	–
Vinyl chloride	0	-	23	0	–	-	–	0.01	-	1.25	–	0.129	–
Xylenes	1	-	12	8.33	0.0086	-	0.0086	0.005	-	0.007	CFW-04(4/29/1993)	0.0033	–
Semi Volatile Organic Compounds													
Benzidine	0	-	3	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	7	0	–	-	–	2	-	2	–	1	–
Benzyl alcohol	0	-	4	0	–	-	–	0.8	-	0.9	–	0.438	–
Benzyl butyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bis(2-chloroethoxy)methane	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bis(2-ethylhexyl)phthalate	1	-	7	14.3	0.46	-	0.46	0.3	-	0.5	147B1(6/8/1992)	0.23	–
4-Bromophenyl phenyl ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
p-Chloroaniline	0	-	4	0	–	-	–	0.8	-	0.9	–	0.438	–
4-Chloro-3-methylphenol	0	-	7	0	–	-	–	0.7	-	0.9	–	0.4	–
4-Chlorophenyl phenyl ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
3,3'-Dichlorobenzidine	0	-	7	0	–	-	–	0.7	-	0.9	–	0.4	–
2,4-Dichlorophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Diethyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2,4-Dimethylphenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2,4-Dinitrophenol	0	-	7	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.9.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Dimethyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Di-n-butyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Di-n-octyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachloro-1,3-butadiene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachlorobenzene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachlorocyclopentadiene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachloroethane	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Methanamine, n-methyl-n-nitroso	0	-	3	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	7	0	–	-	–	1.7	-	2	–	0.957	–
2-Methylphenol	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
4-Methylphenol	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
2-Nitroaniline	0	-	4	0	–	-	–	2	-	2	–	1	–
3-Nitroaniline	0	-	4	0	–	-	–	2	-	2	–	1	–
p-Nitroaniline	0	-	4	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
4-Nitrophenol	0	-	7	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
n-Nitrosodiphenylamine	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine & diphenylamine	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
Pentachlorophenol	0	-	7	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Tribromomethane	0	-	20	0	–	-	–	0.005	-	0.625	–	0.0738	–
2,4,5-Trichlorophenol	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
2,4,6-Trichlorophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Acenaphthylene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.188	–
Anthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(a)anthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(a)pyrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(b)fluoranthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(g,h,i)perylene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(k)fluoranthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
1,2-Benzphenanthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2-Chloronaphthalene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Dibenz(a,h)anthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Fluoranthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–

Table E.9.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Fluorene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Indeno(1,2,3-cd)pyrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2-Methylnaphthalene	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
Naphthalene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Phenanthrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Pyrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	5	-	10	50	19	-	2600	13	-	71	HCF-01(3/28/1990)	554	1121
Total Petroleum Hydrocarbons (TPH)	1	-	3	33.3	21	-	21	13	-	13	147B1(6/8/1992)	11.3	–
Explosives													
2,6-Dinitrotoluene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	19	-	24	79.2	0.063	-	53	0.45	-	0.61	East Bore #3(3/21/1990)	11.4	23.71
Barium	14	-	24	58.3	45	-	330	83	-	110	North Bore #4(3/23/1990)	111	138.8
Cadmium	12	-	24	50	1	-	4	0.44	-	2.7	South Bore #2(3/19/1990)	1.43	1.833
Chromium	14	-	21	66.7	2	-	9.6	4.2	-	7.3	CFW-04(4/29/1993)	3.98	5.029
Chromium (Hexavalent)	0	-	5	0	–	-	–	0.01	-	0.05	–	0.021	–
Cyanide (Total)	0	-	4	0	–	-	–	0.17	-	0.2	–	0.0925	–
Lead	15	-	24	62.5	1.2	-	23	0.56	-	27	North Bore #4(3/23/1990)	9.94	12.59
Mercury	0	-	24	0	–	-	–	0.02	-	0.21	–	0.0198	–
Selenium	12	-	24	50	3	-	95	0.45	-	0.64	East Bore #3(3/21/1990)	27.3	40.04
Silver	0	-	3	0	–	-	–	4.6	-	5.3	–	2.53	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	14	-	88	15.9	0.12	-	6.1	0.1	-	2	142B3(6/10/1992)	0.286	0.423	Y
Acetonitrile	0	-	2	0	–	-	–	0.65	-	0.67	–	0.33	–	Y
Acetophenone	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	Y
Acrolein	0	-	27	0	–	-	–	0.2	-	0.67	–	0.117	–	Y
Acrylonitrile	0	-	52	0	–	-	–	0.01	-	0.2	–	0.0363	–	Y
Allyl chloride	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Benzene	20	-	88	22.7	0.007	-	0.58	0.005	-	0.2	142B3(6/10/1992)	0.0277	0.0398	Y
Bis(2-chloroethyl)ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	Y
Bis(2-chloroisopropyl)ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	Y
Bromobenzene	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
Bromodichloromethane	0	-	92	0	–	-	–	0.005	-	0.625	–	0.0711	–	Y
Bromomethane	0	-	117	0	–	-	–	0.005	-	1.25	–	0.124	–	Y
2-Butanone	0	-	88	0	–	-	–	0.05	-	1	–	0.0798	–	Y
tert-Butyl alcohol	0	-	25	0	–	-	–	0.2	-	4	–	0.404	–	Y
n-Butylbenzene	9	-	25	36	0.0123	-	5.28	0.01	-	0.2	HLSF-SB-014(11/17/2006)	0.386	0.767	Y
sec-Butylbenzene	9	-	25	36	0.0132	-	5.57	0.01	-	0.2	HLSF-SB-014(11/17/2006)	0.401	0.802	Y
tert-Butylbenzene	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
Carbon disulfide	1	-	88	1.14	0.0065	-	0.0065	0.005	-	0.2	147B1(6/8/1992)	0.00842	–	Y
Carbon tetrachloride	1	-	117	0.855	3.9	-	3.9	0.005	-	0.625	East Bore #3(3/21/1990)	0.0871	–	Y
CFC-11	0	-	81	0	–	-	–	0.01	-	1.25	–	0.104	–	Y
CFC-12	0	-	52	0	–	-	–	0.01	-	0.2	–	0.015	–	Y
Chlorinated fluorocarbon (Freon 113)	1	-	29	3.45	12.5	-	12.5	0.25	-	6.25	South Bore #2(3/19/1990)	2.41	–	Y
Chlorobenzene	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	Y
Chlorobromomethane	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
2-Chlor-1,3-butadiene	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Chlorodibromomethane	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	N
Chloroethane	0	-	117	0	–	-	–	0.01	-	1.25	–	0.103	–	Y
2-Chloroethyl vinyl ether	0	-	115	0	–	-	–	0.01	-	1.25	–	0.128	–	Y
Chloroform	0	-	117	0	–	-	–	0.005	-	1.25	–	0.0591	–	Y
Chloromethane	0	-	50	0	–	-	–	0.01	-	0.2	–	0.0126	–	Y
2-Chlorophenol	0	-	65	0	–	-	–	0.25	-	8	–	0.48	–	Y
2-Chlorotoluene	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
4-Chlorotoluene	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
Cymene	5	-	25	20	0.187	-	1.77	0.01	-	0.2	HLSF-SB-014(11/17/2006)	0.13	0.392	Y
Dibenzofuran	12	-	40	30	0.17	-	5.3	0.25	-	2	CFW-02(5/20/1993)	0.806	1.169	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	27	0	–	-	–	0.05	-	11	–	0.334	–	N

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
1,2-Dibromoethane	0	-	27	0	–	-	–	0.01	-	0.2	–	0.0192	–	Y
Dibromomethane	0	-	52	0	–	-	–	0.01	-	0.2	–	0.015	–	Y
1,2-Dichlorobenzene	0	-	66	0	–	-	–	0.01	-	4	–	0.208	–	Y
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	-	29	0	–	-	–	0.025	-	1.25	–	0.267	–	Y
1,4-Dichlorobenzene	0	-	95	0	–	-	–	0.01	-	4	–	0.226	–	Y
1,4 Dichloro-2-butene	0	-	27	0	–	-	–	0.02	-	0.027	–	0.0102	–	Y
trans-1,4-Dichlorobutene	0	-	25	0	–	-	–	0.1	-	2	–	0.202	–	Y
1,1-Dichloroethane	17	-	117	14.5	0.0069	-	1.4	0.005	-	1.25	South Bore #2(3/23/1990)	0.0957	0.0497	Y
1,2-Dichloroethane	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	Y
1,1-Dichloroethylene	2	-	117	1.71	0.01	-	0.048	0.005	-	1.25	CFW-03(5/18/1993)	0.0622	–	Y
cis-1,2-Dichloroethene	0	-	61	0	–	-	–	0.005	-	0.2	–	0.0108	–	Y
trans-1,2-Dichloroethene	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	Y
Dichloromethane	1	-	117	0.855	0.02	-	0.02	0.005	-	1.25	CFW-03(5/18/1993)	0.121	–	Y
1,2-Dichloropropane	0	-	117	0	–	-	–	0.005	-	1.25	–	0.0645	–	Y
1,3-Dichloropropane	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
2,2-Dichloropropane	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
1,1-Dichloropropene	0	-	25	0	–	-	–	0.01	-	0.2	–	0.0202	–	Y
cis-1,3-Dichloropropene	0	-	88	0	–	-	–	0.005	-	0.2	–	0.0083	–	Y
trans-1,3-Dichloropropene	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	Y
Ethanol	0	-	25	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	27	0	–	-	–	0.02	-	11	–	0.25	–	Y
Ethylbenzene	25	-	88	28.4	0.012	-	4.1	0.005	-	0.2	147B1(6/8/1992)	0.273	0.424	Y
Iodomethane	0	-	52	0	–	-	–	0.02	-	1	–	0.0539	–	Y
Isopropyl alcohol	0	-	25	0	–	-	–	0.2	-	4	–	0.404	–	N
Isopropylbenzene	8	-	25	32	0.0247	-	3.1	0.01	-	0.2	HLSF-SB-014(11/17/2006)	0.182	0.413	Y
m-Dichlorobenzene	0	-	66	0	–	-	–	0.01	-	4	–	0.208	–	Y
Methyl methacrylate	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Methyl n-butyl ketone	0	-	88	0	–	-	–	0.05	-	1	–	0.0543	–	Y
Methylacrylonitrile	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Methylbenzene	2	-	88	2.27	0.0096	-	0.038	0.005	-	0.2	142B3(6/10/1992)	0.00879	–	Y
2-Methyl-1-propanol	0	-	2	0	–	-	–	1.3	-	1.3	–	0.65	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	88	0	–	-	–	0.05	-	1	–	0.0543	–	Y
Methyl tert-butyl ether (MTBE)	0	-	41	0	–	-	–	0.005	-	0.2	–	0.0139	–	Y
Nitrobenzene	0	-	53	0	–	-	–	0.25	-	4	–	0.222	–	Y
Propionitrile	0	-	2	0	–	-	–	0.13	-	0.13	–	0.065	–	Y
n-Propylbenzene	7	-	25	28	0.0261	-	5.27	0.01	-	0.2	HLSF-SB-014(11/17/2006)	0.292	0.686	Y
Styrene (monomer)	0	-	88	0	–	-	–	0.005	-	0.2	–	0.0083	–	Y
Tetrachloroethene	0	-	50	0	–	-	–	0.005	-	0.2	–	0.0114	–	Y

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
1,1,1,2-Tetrachloroethane	0	-	27	0	–	-	–	0.01	-	0.2	–	0.0192	–	Y
1,1,2,2-Tetrachloroethane	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	Y
1,1,1-Trichloroethane	27	-	117	23.1	0.0068	-	21	0.005	-	1.25	South Bore #2(3/19/1990)	0.473	1.731	Y
1,1,2-Trichloroethane	0	-	117	0	–	-	–	0.005	-	0.625	–	0.0565	–	Y
1,2,3-Trichlorobenzene	0	-	25	0	–	-	–	0.05	-	1	–	0.101	–	Y
1,2,3-Trichloropropane	0	-	52	0	–	-	–	0.01	-	0.2	–	0.015	–	Y
1,2,4-Trichlorobenzene	0	-	66	0	–	-	–	0.05	-	4	–	0.232	–	Y
1,2,4-Trimethylbenzene	3	-	25	12	0.968	-	1.62	0.01	-	0.2	HLSF-SB-019(11/13/2006)	0.166	–	Y
1,3,5-Trimethylbenzene	4	-	27	14.8	0.0125	-	0.736	0.01	-	11	HLSF-SB-019(11/13/2006)	0.31	–	Y
Trichloroethylene	0	-	50	0	–	-	–	0.005	-	0.2	–	0.0114	–	Y
Vinyl acetate	0	-	63	0	–	-	–	0.01	-	0.1	–	0.00714	–	Y
Vinyl chloride	0	-	117	0	–	-	–	0.01	-	1.25	–	0.109	–	Y
m,p-Xylene	1	-	25	4	0.0149	-	0.0149	0.01	-	0.2	HLSF-SB-019(11/13/2006)	0.0206	–	Y
o-Xylene	1	-	25	4	0.0311	-	0.0311	0.01	-	0.2	HLSF-SB-019(11/13/2006)	0.0212	–	Y
Xylenes	27	-	63	42.9	0.0059	-	7	0.005	-	0.05	142B3(6/10/1992)	0.283	1.062	Y
Semi Volatile Organic Compounds														
2-Acetylaminofluorene	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
4-Aminobiphenyl	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Aniline	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Benzidine	0	-	49	0	–	-	–	0.25	-	1.7	–	0.495	–	N
Benzoic acid	1	-	63	1.59	0.41	-	0.41	0.25	-	19	HLSF-SB-013(11/16/2006)	1.09	–	N
Benzyl alcohol	0	-	40	0	–	-	–	0.25	-	8	–	0.555	–	N
Benzyl butyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Bis(2-chloroethoxy)methane	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Bis(2-ethylhexyl)phthalate	2	-	65	3.08	0.045	-	0.46	0.25	-	4	147B1(6/8/1992)	0.246	–	N
4-Bromophenyl phenyl ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
2-Butoxy ethanol	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Chlordecone (Kepone)	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
p-Chloroaniline	0	-	40	0	–	-	–	0.25	-	8	–	0.555	–	N
Chlorobenzilate	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
4-Chloro-3-methylphenol	0	-	65	0	–	-	–	0.25	-	8	–	0.476	–	N
Chlorophenols	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
4-Chlorophenyl phenyl ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
m,p-Cresol	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Dibenz[a,,j]acridine	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
3,3'-Dichlorobenzidine	0	-	65	0	–	-	–	0.25	-	8	–	0.476	–	N
2,4-Dichlorophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
2,6-Dichlorophenol	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Diethyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
o,o-Diethyl o-pyrazinyl phosphorothioate	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
4-Dimethylaminoazobenzene	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
3,3'-Dimethylbenzidine	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
2,4-Dimethylphenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
2,4-Dinitrophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
2,4-Dinitrotoluene	0	-	54	0	–	-	–	0.25	-	4	–	0.236	–	N
a,a-Dimethylphenethylamine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Dimethyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Di-n-butyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
m-Dinitrobenzene	0	-	1	0	–	-	–	4	-	4	–	2	–	N
Di-n-octyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
1,4-Dioxane	0	-	27	0	–	-	–	0.5	-	10	–	0.96	–	N
Diphenylamine	3	-	26	11.5	0.271	-	1.63	0.25	-	2	HLSF-SB-019(11/13/2006)	0.242	–	N
Diphenylhydrazine	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Ethyl methanesulfonate	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Famphur	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Hexachloro-1,3-butadiene	0	-	66	0	–	-	–	0.05	-	4	–	0.232	–	N
Hexachlorobenzene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Hexachlorocyclopentadiene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Hexachloroethane	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Hexachlorophene (HCP)	0	-	2	0	–	-	–	9	-	44	–	13.3	–	N
Hexachloropropene	0	-	2	0	–	-	–	4	-	22	–	6.5	–	N
Isodrin	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Isosafrole	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	Y
Methanamine, n-methyl-n-nitroso	0	-	51	0	–	-	–	0.25	-	11	–	0.267	–	N
Methapyrilene	0	-	2	0	–	-	–	9	-	44	–	13.3	–	N
2-Methyl-4,6-dinitrophenol	0	-	65	0	–	-	–	0.25	-	42	–	1.55	–	N
Methyl methanesulfonate	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Methyl parathion	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
2-Methylphenol	0	-	40	0	–	-	–	0.25	-	4	–	0.303	–	N
3-Methylphenol	0	-	2	0	–	-	–	0.4	-	2	–	0.6	–	N
4-Methylphenol	0	-	16	0	–	-	–	0.4	-	4	–	0.569	–	N
2-Methyl pyridine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
1,4-Naphthoquinone	0	-	2	0	–	-	–	9	-	44	–	13.3	–	N
1-Naphthylamine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
2-Naphthylamine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
2-Nitroaniline	0	-	40	0	–	-	–	0.25	-	19	–	1.25	–	N

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
3-Nitroaniline	0	-	40	0	–	-	–	0.25	-	19	–	1.25	–	N
p-Nitroaniline	0	-	40	0	–	-	–	0.25	-	19	–	1.25	–	N
2-Nitrophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
4-Nitrophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
4-Nitroquinoline-n-oxide	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
n-Nitrosodiethylamine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
n-Nitrosodi-n-butylamine	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	Y
n-Nitrosodi-n-propylamine	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
n-Nitrosodiphenylamine	2	-	27	7.41	0.12	-	2.5	0.3	-	0.3	CFW-03(5/18/1993)	0.236	–	N
n-Nitrosodiphenylamine & diphenylamine	5	-	14	35.7	2.8	-	9.4	0.4	-	2	CFW-02(5/20/1993)	2.56	5.373	N
n-Nitrosomethyl-ethylamine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
n-Nitrosomorpholine	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
n-Nitrosopiperidine	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
n-Nitrosopyrrolidine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
5-Nitro-o-toluidine	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Pentachlorobenzene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Pentachloroethane	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Pentachlorophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
Phenacetin	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Phenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
p-Phenylenediamine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Propyzamide	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Pyridine	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Safrole	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
1,2,4,5-Tetrachlorobenzene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Tribromomethane	0	-	92	0	–	-	–	0.005	-	0.625	–	0.0711	–	N
2,4,5-Trichlorophenol	0	-	40	0	–	-	–	0.25	-	4	–	0.303	–	N
2,4,6-Trichlorophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
o,o,o-Triethyl phosphorothioate	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	Y
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	8	-	65	12.3	0.08	-	2.6	0.25	-	4	CFW-02(5/20/1993)	0.331	0.326	Y
Acenaphthylene	0	-	65	0	–	-	–	0.25	-	8	–	0.48	–	Y
Anthracene	11	-	65	16.9	0.46	-	6.16	0.25	-	4	HLSF-SB-019(11/13/2006)	0.594	1.031	Y
Benzo(a)anthracene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Benzo(a)pyrene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Benzo(b)fluoranthene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Benzo(g,h,i)perylene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N

Table E.9.Data-3
Soil Risk Assessment Dataset
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Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Benzo(k)fluoranthene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
1,2-Benzphenanthracene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
1-Chloronaphthalene	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
2-Chloronaphthalene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	Y
Dibenz(a,h)anthracene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
7,12-Dimethylbenz(a)anthracene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Fluoranthene	1	-	65	1.54	0.23	-	0.23	0.25	-	4	CFW-02(5/20/1993)	0.232	–	N
Fluorene	21	-	65	32.3	0.16	-	6.1	0.25	-	2	CFW-02(5/20/1993)	0.804	1.08	Y
Indeno(1,2,3-cd)pyrene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
3-Methylchloranthrene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
1-Methylnaphthalene	10	-	24	41.7	0.327	-	23.7	0.25	-	0.25	HLSF-SB-014(11/17/2006)	3.47	6.11	Y
2-Methylnaphthalene	16	-	40	40	0.698	-	49	0.25	-	0.5	CFW-02(5/20/1993)	6.95	10.87	Y
Naphthalene	32	-	66	48.5	0.0648	-	14	0.05	-	2	147B1(6/8/1992)	2.24	2.938	Y
Phenanthrene	27	-	65	41.5	0.36	-	18	0.25	-	0.5	147B1(6/8/1992),CFW-02(5/20/1993)	2.67	3.727	Y
Pyrene	5	-	65	7.69	0.27	-	0.732	0.25	-	4	HLSF-SB-014(11/17/2006)	0.237	0.316	N
Herbicides														
2,4-D	0	-	2	0	–	-	–	0.013	-	0.02	–	0.00825	–	N
2,4,5-T	0	-	2	0	–	-	–	0.013	-	0.02	–	0.00825	–	N
2,4,5-TP (Silvex)	0	-	2	0	–	-	–	0.013	-	0.02	–	0.00825	–	N
Pesticides														
Aldrin	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
alpha-BHC	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Aramite	0	-	2	0	–	-	–	4	-	22	–	6.5	–	N
beta-BHC	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Camphechlor	0	-	2	0	–	-	–	0.067	-	0.067	–	0.0335	–	N
Chlordane	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Cygon	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
4,4-DDD	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
4,4-DDE	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
4,4-DDT	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
delta-BHC	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Diallate	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Dieldrin	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
Disulfoton	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Endosulfan I	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Endosulfan II	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
Endosulfan sulfate	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
Endrin	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Endrin aldehyde	0	-	2	0	–	-	–	0.007	-	0.007	–	0.0035	–	N
gamma-BHC	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Heptachlor	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Heptachlor epoxide	0	-	2	0	–	-	–	0.003	-	0.003	–	0.0015	–	N
Parathion	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Pentachloronitrobenzene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Phorate	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Sulfotep	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethan	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Total Petroleum Hydrocarbons (TPH)														
>C10-C28	26	-	41	63.4	15	-	28000	11	-	71	CFW-04(4/29/1993)	2680	4159	N
Diesel Range Organics (DRO)	13	-	25	52	62.7	-	9800	50	-	50	HLSF-SB-019(11/13/2006)	1020	1887	N
Gasoline Range Organics (GRO)	13	-	25	52	1.12	-	335	1	-	1	HLSF-SB-014(11/17/2006)	38.7	71.08	N
Total Petroleum Hydrocarbons (TPH)	19	-	25	76	21	-	14000	10	-	13	142B1(6/9/1992)	3260	7101	N
Polychlorinated Biphenyls														
Aroclor 1221	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1232	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1242	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1254	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1260	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1016	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1248	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Explosives														
2,6-Dinitrotoluene	0	-	55	0	–	-	–	0.25	-	4	–	0.25	–	N
Inorganics														
Antimony	0	-	2	0	–	-	–	7.1	-	7.2	–	3.58	–	N
Arsenic	80	-	98	81.6	0.063	-	53	0.45	-	13	East Bore #3(3/21/1990)	8.04	12.46	N
Barium	66	-	98	67.3	3	-	1000	0.05	-	110	CFW-03(5/18/1993)	79.9	97.52	N
Beryllium	0	-	1	0	–	-	–	0.59	-	0.59	–	0.295	–	N
Cadmium	32	-	98	32.7	0.25	-	4	0.38	-	2.7	South Bore #2(3/19/1990)	0.898	0.902	N
Chromium	74	-	93	79.6	1	-	17	0.5	-	7.3	CFW-03(5/18/1993)	4.74	5.382	N
Chromium (Hexavalent)	3	-	48	6.25	0.052	-	0.153	0.01	-	5	CFW-04(4/29/1993)	1.26	–	N
Cobalt	0	-	1	0	–	-	–	5.9	-	5.9	–	2.95	–	N
Copper	6	-	6	100	2.21	-	16	–	-	–	CFW-03(5/18/1993)	6.14	–	N
Cyanide (Total)	3	-	16	18.8	0.2	-	0.53	0.15	-	0.2	CFW-02(5/20/1993)	0.145	–	N
Lead	89	-	118	75.4	0.87	-	26.3	0.45	-	27	HLSF-SB-019	8.4	9.228	N
Mercury	0	-	98	0	–	-	–	0.02	-	0.32	–	0.0232	–	N
Nickel	2	-	2	100	5.2	-	19	–	-	–	CFW-03(5/18/1993)	12.1	–	N

Table E.9.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Nitrate + Nitrite	8	-	8	100	0.156	-	3.18	–	-	–	HLSF-SB-017(10/12/2006)	1.32	2.106	N
Phosphorus	24	-	24	100	7.15	-	270	–	-	–	HLSF-SB-019	129	152.2	N
Potassium	4	-	4	100	645	-	1970	–	-	–	HLSF-SB-017(10/12/2006)	1330	–	N
Selenium	31	-	98	31.6	0.8	-	95	0.3	-	1	East Bore #3(3/21/1990)	14.8	20.29	N
Silver	0	-	29	0	–	-	–	0.2	-	5.4	–	1.09	–	N
Sodium	24	-	24	100	232	-	2030	–	-	–	HLSF-SB-016(11/17/2006)	824	1022	N
Sulfide	2	-	2	100	73	-	91	–	-	–	CFW-02(5/20/1993)	82	–	N
Thallium	0	-	2	0	–	-	–	0.59	-	0.6	–	0.298	–	N
Tin	0	-	2	0	–	-	–	12	-	12	–	6	–	N
Vanadium	2	-	2	100	17	-	160	–	-	–	CFW-03(5/18/1993)	88.5	–	N
Zinc	26	-	26	100	3.64	-	46.7	–	-	–	HLSF-SB-019	17.1	21.4	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.9.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Acrylonitrile	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	4	-	9	44.4	0.00101	-	0.00292	0.001	-	0.001	HCF-01(3/8/2004)	0.00101	–	Y
Bis(2-chloroethyl)ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Bis(2-chloroisopropyl)ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Bromobenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	9	0	–	-	–	0.001	-	0.005	–	0.00139	–	Y
2-Butanone	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	2	-	9	22.2	0.00125	-	0.00168	0.001	-	0.001	HCF-01(8/11/2004)	0.000714	–	Y
sec-Butylbenzene	5	-	9	55.6	0.00104	-	0.00615	0.001	-	0.001	HCF-01(8/11/2004)	0.00188	0.00342	Y
tert-Butylbenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-12	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chloromethane	1	-	9	11.1	0.00342	-	0.00342	0.001	-	0.001	CFW-01(8/22/2005)	0.000824	–	Y
2-Chlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
2-Chlorotoluene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibenzofuran	2	-	9	22.2	0.00779	-	0.00871	0.005	-	0.005	HCF-01(8/11/2004)	0.00378	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	9	0	–	-	–	0.002	-	0.005	–	0.00167	–	N
1,2-Dibromoethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	9	0	–	-	–	0.001	-	0.005	–	0.00117	–	Y
1,4-Dichlorobenzene	0	-	9	0	–	-	–	0.001	-	0.005	–	0.00117	–	Y
trans-1,4-Dichlorobutene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	3	-	9	33.3	0.00464	-	0.0234	0.001	-	0.001	CFW-01(10/5/2007)	0.00483	–	Y
1,2-Dichloroethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y

Table E.9.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,1-Dichloroethylene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropylbenzene	7	-	9	77.8	0.00109	-	0.00668	0.001	-	0.001	HCF-01(8/11/2004)	0.00238	0.00382	Y
m-Dichlorobenzene	0	-	9	0	–	-	–	0.001	-	0.005	–	0.00117	–	Y
Methyl n-butyl ketone	0	-	9	0	–	-	–	0.001	-	0.005	–	0.00139	–	Y
Methylbenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	3	-	9	33.3	0.00148	-	0.00394	0.001	-	0.001	CFW-01(8/22/2005)	0.00127	–	Y
Nitrobenzene	0	-	9	0	–	-	–	0.0005	-	5	–	0.557	–	Y
n-Propylbenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	2	-	9	22.2	0.00119	-	0.00203	0.001	-	0.001	CFW-04(3/10/2006)	0.000747	–	Y
1,3,5-Trimethylbenzene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Vinyl chloride	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Aniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzidine	0	-	9	0	–	-	–	0.01	-	15	–	1.67	–	N

Table E.9.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Benzoic acid	0	-	9	0	–	-	–	0.005	-	20	–	2.22	–	N
Benzyl alcohol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzyl butyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Bis(2-chloroethoxy)methane	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Bis(2-ethylhexyl)phthalate	0	-	9	0	–	-	–	0.005	-	10	–	1.12	–	N
4-Bromophenyl phenyl ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
p-Chloroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
4-Chloro-3-methylphenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Chlorophenols	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
4-Chlorophenyl phenyl ether	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
m,p-Cresol	0	-	7	0	–	-	–	0.005	-	5	–	0.359	–	N
Dibenz[a,,j]acridine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
3,3'-Dichlorobenzidine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4-Dichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,6-Dichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
Diethyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
4-Dimethylaminoazobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4-Dimethylphenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4-Dinitrophenol	0	-	9	0	–	-	–	0.005	-	20	–	2.22	–	N
2,4-Dinitrotoluene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
a,a-Dimethylphenethylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Dimethyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Di-n-butyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
m-Dinitrobenzene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Di-n-octyl phthalate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Diphenylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Diphenylhydrazine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Ethyl methanesulfonate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Hexachloro-1,3-butadiene	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Hexachlorocyclopentadiene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Hexachloroethane	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Methanamine, n-methyl-n-nitroso	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Methyl-4,6-dinitrophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Methyl methanesulfonate	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Methylphenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
3-Methylphenol	0	-	2	0	–	-	–	0.005	-	5	–	1.25	–	N
4-Methylphenol	0	-	2	0	–	-	–	0.005	-	5	–	1.25	–	N
2-Methyl pyridine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N

Table E.9.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1-Naphthylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Naphthylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Nitroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
3-Nitroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
p-Nitroaniline	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2-Nitrophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
4-Nitrophenol	0	-	9	0	–	-	–	0.025	-	5	–	0.565	–	N
n-Nitrosodi-n-butylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
n-Nitrosodi-n-propylamine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
n-Nitrosopiperidine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Pentachlorobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Pentachlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
Phenacetin	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Phenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Propyzamide	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Pyridine	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,2,4,5-Tetrachlorobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Tribromomethane	0	-	9	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,4,6-Trichlorophenol	0	-	9	0	–	-	–	0.005	-	5	–	0.559	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,3,5-Trinitrobenzene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	1	-	9	11.1	0.071	-	0.071	0.005	-	5	CFW-01(10/5/2007)	0.565	–	Y
Acenaphthylene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Anthracene	1	-	9	11.1	0.184	-	0.184	0.005	-	5	CFW-01(10/5/2007)	0.578	–	Y
Benzo(a)anthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(a)pyrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(b)fluoranthene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(g,h,i)perylene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Benzo(k)fluoranthene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1,2-Benzphenanthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1-Chloronaphthalene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
2-Chloronaphthalene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	Y
Dibenz(a,h)anthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
7,12-Dimethylbenz(a)anthracene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Fluoranthene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Fluorene	1	-	9	11.1	0.0874	-	0.0874	0.005	-	5	CFW-01(10/5/2007)	0.567	–	Y
Indeno(1,2,3-cd)pyrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N

Table E.9.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
3-Methylchloranthrene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
1-Methylnaphthalene	4	-	9	44.4	0.0369	-	0.28	0.005	-	0.005	CFW-01(10/5/2007)	0.0538	–	Y
2-Methylnaphthalene	4	-	9	44.4	0.0219	-	0.178	0.005	-	0.005	CFW-01(10/5/2007)	0.0431	–	Y
Naphthalene	4	-	9	44.4	0.00672	-	0.0703	0.005	-	0.005	HCF-01(3/8/2004)	0.0144	–	Y
Phenanthrene	2	-	9	22.2	0.00717	-	0.0113	0.005	-	0.005	HCF-01(8/11/2004)	0.004	–	Y
Pyrene	1	-	9	11.1	0.0418	-	0.0418	0.005	-	5	CFW-01(10/5/2007)	0.562	–	N
Pesticides														
Pentachloronitrobenzene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	2	-	9	22.2	16.2	-	338	5	-	50	CFW-01(10/5/2007)	56.3	–	N
Gasoline Range Organics (GRO)	1	-	9	11.1	0.414	-	0.414	0.1	-	0.1	CFW-01(10/5/2007)	0.0904	–	N
Explosives														
2-Amino-4,6-dinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-2,6-dinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-dnt / 2-Amino-dnt	0	-	7	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	9	0	–	-	–	0.005	-	5	–	0.558	–	N
2,6-DNT / 2,4-DNT	0	-	7	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2-Nitrotoluene	1	-	9	11.1	0.0124	-	0.0124	0.0005	-	0.0005	CFW-01(10/5/2007)	0.0016	–	N
3-Nitrotoluene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	-	9	11.1	0.00287	-	0.00287	0.0005	-	0.0005	HCF-01(8/11/2004)	0.000541	–	N
RDX	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Aluminum	1	-	7	14.3	0.043	-	0.043	0.03	-	0.1	CFW-04(8/23/2005)	0.029	–	N
Ammonia	0	-	7	0	–	-	–	1	-	1	–	0.5	–	N
Antimony	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Arsenic	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–	N
Barium	6	-	9	66.7	0.01	-	0.029	0.01	-	0.1	HCF-01(8/11/2004)	0.0173	0.0191	N
Beryllium	0	-	9	0	–	-	–	0.0025	-	0.0025	–	0.00125	–	N
Boron	7	-	7	100	5.12	-	7.68	–	-	–	CFW-01(8/22/2005)	6.2	–	N
Cadmium	0	-	9	0	–	-	–	0.001	-	0.005	–	0.000833	–	N
Calcium metal	1	-	1	100	380	-	380	–	-	–	CFW-04(3/10/2006)	380	–	N
Chromium	7	-	9	77.8	0.006	-	0.08	0.01	-	0.01	CFW-01(8/22/2005)	0.0241	0.0407	N
Chromium (Hexavalent)	1	-	6	16.7	0.034	-	0.034	0.01	-	0.01	HCF-01(3/8/2004)	0.00983	–	N
Cobalt	0	-	9	0	–	-	–	0.005	-	0.02	–	0.005	–	N
Copper	3	-	9	33.3	0.019	-	0.052	0.005	-	0.0125	CFW-04(5/18/2005)	0.015	–	N
Cyanide (Total)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–	N

Table E.9.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Fluoride	9	-	9	100	1.59	-	3.97	–	-	–	HCF-01(3/8/2004)	2.92	3.446	N
Iron	7	-	7	100	0.041	-	1.06	–	-	–	CFW-01(5/18/2005)	0.309	–	N
Lead	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00361	–	N
Lithium	1	-	1	100	0.291	-	0.291	–	-	–	CFW-04(3/10/2006)	0.291	–	N
Magnesium	1	-	1	100	430	-	430	–	-	–	CFW-04(3/10/2006)	430	–	N
Manganese	6	-	7	85.7	0.138	-	0.967	0.025	-	0.025	HCF-01(8/11/2004)	0.36	–	N
Mercury	0	-	9	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Molybdenum	6	-	7	85.7	0.064	-	0.526	0.05	-	0.05	HCF-01(8/11/2004)	0.213	–	N
Nickel	7	-	9	77.8	0.005	-	0.2	0.005	-	0.025	CFW-01(8/22/2005)	0.0462	0.144	N
Nitrate	7	-	7	100	2.22	-	15.4	–	-	–	HCF-01(8/11/2004)	8.02	–	N
Nitrate + Nitrite	2	-	2	100	1.13	-	1.42	–	-	–	CFW-04(10/9/2007)	1.28	–	N
Phosphorus	2	-	7	28.6	0.055	-	0.112	0.05	-	0.05	CFW-04(8/23/2005)	0.0417	–	N
Potassium	1	-	1	100	109	-	109	–	-	–	CFW-04(3/10/2006)	109	–	N
Selenium	0	-	9	0	–	-	–	0.01	-	0.05	–	0.00833	–	N
Silver	0	-	9	0	–	-	–	0.002	-	0.0125	–	0.00197	–	N
Sodium	1	-	1	100	1420	-	1420	–	-	–	CFW-04(3/10/2006)	1420	–	N
Strontium	7	-	7	100	5.08	-	15.8	–	-	–	CFW-01(5/18/2005)	9.26	–	N
Sulfate	9	-	9	100	2960	-	5260	–	-	–	CFW-04(8/23/2005)	4450	4916	N
Thallium	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Tin	0	-	9	0	–	-	–	0.025	-	0.025	–	0.0125	–	N
Vanadium	6	-	9	66.7	0.016	-	0.033	0.005	-	0.025	CFW-04(5/18/2005)	0.0204	0.0281	N
Zinc	1	-	9	11.1	0.013	-	0.013	0.005	-	0.025	HCF-01(8/11/2004)	0.00533	–	N
Other														
Bromide	5	-	9	55.6	0.69	-	0.77	0.2	-	0.2	CFW-01(10/5/2007)	0.449	0.739	N
Chloride	9	-	9	100	543	-	721	–	-	–	CFW-04(5/18/2005)	624	667.5	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.9-HHRA-1
Selection of Constituents of Potential Concern in Soil for Future Residential and Industrial Scenarios - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Volatile Organic Compounds																	
Acetone	0 / 2	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0 / 1	0	–	0.2	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0 / 1	0	–	0.1	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0 / 2	0	–	0.005	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0 / 1	0	–	0.3	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0 / 1	0	–	0.3	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromodichloromethane	0 / 6	0	–	0.625	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0 / 7	0	–	1.25	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0 / 2	0	–	0.1	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0 / 2	0	–	0.005	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0 / 7	0	–	0.625	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0 / 6	0	–	1.25	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0 / 1	0	–	0.02	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorinated fluorocarbon (Freon 113)	0 / 5	0	–	6.25	–	1.04E+05	n	3.39E+05	n	–	–	–	–	–	–	no	no
Chlorobenzene	0 / 7	0	–	0.625	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0 / 7	0	–	0.625	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0 / 7	0	–	1.25	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0 / 7	0	–	1.25	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0 / 7	0	–	0.625	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0 / 1	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0 / 1	0	–	0.33	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0 / 1	0	–	0.02	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0 / 1	0	–	0.3	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0 / 5	0	–	1.25	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0 / 6	0	–	1.25	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0 / 1	0	–	0.02	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	1 / 7	14.3	1.4	0.625	–	6.29E+01	c	3.50E+02	c	no	no	2.23E-02	–	4.00E-03	–	yes	yes
1,2-Dichloroethane	0 / 7	0	–	0.625	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0 / 7	0	–	0.625	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0 / 1	0	–	0.005	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0 / 7	0	–	0.625	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0 / 7	0	–	1.25	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0 / 7	0	–	0.625	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0 / 2	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0 / 7	0	–	0.625	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethanol	0 / 1	0	–	1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Ethyl methacrylate	0 / 1	0	–	0.02	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0 / 2	0	–	0.005	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0 / 1	0	–	0.02	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0 / 1	0	–	0.3	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0 / 2	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0 / 2	0	–	0.005	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0 / 2	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0 / 1	0	–	0.3	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0 / 2	0	–	0.005	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0 / 1	0	–	0.005	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0 / 7	0	–	0.625	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	2 / 7	28.6	1.2	0.625	–	2.18E+04	n	7.71E+04	n	no	no	–	5.49E-05	–	1.56E-05	yes	yes
1,1,2-Trichloroethane	0 / 7	0	–	0.625	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0 / 1	0	–	0.02	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0 / 1	0	–	0.3	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0 / 1	0	–	0.005	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0 / 2	0	–	0.01	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0 / 7	0	–	1.25 ^	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0 / 2	0	–	0.005	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																	

Table E.9-HHRA-1
Selection of Constituents of Potential Concern in Soil for Future Residential and Industrial Scenarios - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Benzidine	0	1	0	–	1.7 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0	1	0	–	2	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl butyl phthalate	0	1	0	–	0.3	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0	1	0	–	0.3	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bis(2-ethylhexyl)phthalate	0	1	0	–	0.3	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0	1	0	–	0.3	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0	1	0	–	0.7	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0	1	0	–	0.3	–	NA	n	NA	n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0	1	0	–	0.7	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0	1	0	–	0.3	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
Diethyl phthalate	0	1	0	–	0.3	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0	1	0	–	0.3	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0	1	0	–	2	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0	1	0	–	0.3	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0	1	0	–	0.3	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0	1	0	–	0.3	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0	1	0	–	0.3	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0	1	0	–	0.3	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0	1	0	–	0.3	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0	1	0	–	0.3	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Hexachloroethane	0	1	0	–	0.3	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
Methanamine, n-methyl-n-nitroso	0	1	0	–	0.33 ^	–	9.54E-02	c	3.76E-01	c	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0	1	0	–	2	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–	no	no
2-Nitrophenol	0	1	0	–	0.3	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Nitrophenol	0	1	0	–	2	–	NA	n	NA	n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0	1	0	–	0.3	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0	1	0	–	0.3	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–	no	no
Pentachlorophenol	0	1	0	–	2	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–	no	no
Phenol	0	1	0	–	0.3	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–	no	no
Tribromomethane	0	6	0	–	0.625	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0	1	0	–	0.3	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	1	0	–	0.3	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	0	1	0	–	0.3	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0	1	0	–	0.33	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0	1	0	–	0.3	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0	1	0	–	0.3	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0	1	0	–	0.3	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0	1	0	–	0.3	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0	1	0	–	0.3	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0	1	0	–	0.3	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0	1	0	–	0.3	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0	1	0	–	0.3	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0	1	0	–	0.3	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Fluoranthene	0	1	0	–	0.3	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0	1	0	–	0.3	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0	1	0	–	0.3	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Naphthalene	0	1	0	–	0.3	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Phenanthrene	0	1	0	–	0.3	–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–	no	no
Pyrene	0	1	0	–	0.3	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)																		
>C10-C28	0	1	0	–	13	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)	0	1	0	–	13	–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–	no	no
Explosives																		
2,6-Dinitrotoluene	0	1	0	–	0.3	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																		
Arsenic	4	6	66.7	53	0.61	no	3.90E+00	c	1.77E+01	c	YES	YES	1.36E+01	–	3.00E+00	–	yes	yes

Table E.9-HHRA-1
Selection of Constituents of Potential Concern in Soil for Future Residential and Industrial Scenarios - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Barium	4	/	6	66.7	330	92	YES	1.56E+04	n	2.24E+05	n	no	no	–	2.12E-02	–	1.47E-03	no	no
Cadmium	4	/	6	66.7	1.8	2.3	YES	7.79E+01	n	1.12E+03	n	no	no	–	2.31E-02	–	1.60E-03	no	no
Chromium	4	/	5	80	4.8	4.5	YES	2.19E+02	n	2.92E+03	n	no	no	–	2.19E-02	–	1.64E-03	no	no
Chromium (Hexavalent)	0	/	1	0	–	0.05	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	4	/	6	66.7	18	23	YES	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	0	/	6	0	–	0.09	no	7.71E+00	n	4.99E+01	n	–	–	–	–	–	–	no	no
Selenium	4	/	6	66.7	73	0.61	no	3.91E+02	n	5.68E+03	n	no	no	–	1.87E-01	–	1.29E-02	yes	yes
Silver	0	/	1	0	–	4.6	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Total Maximum / Screening Level Ratios														13.6	0.3	3	0.02		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)														1.E-04	0.3	3.E-05	0.02		

Target Organ Max/SL Ratios	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (noncancer)
Kidney and Liver	0.04	0.003
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	NA	NA
Lungs	0.02	0.002
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	0.2	0.01
Blood	NA	NA
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.02	0.001
Immune System	NA	NA
Development	NA	NA
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	0.00005	0.00002

Notes:

– = Not applicable.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.9-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds												
Acetone	0	/ 12	0	–	0.14	–	2.63E+05	n	–	–	–	no
Acrolein	0	/ 3	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/ 3	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/ 12	0	–	0.007	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/ 7	0	–	0.5	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/ 7	0	–	0.5	–	3.10E+03	c	–	–	–	no
Bromodichloromethane	0	/ 20	0	–	0.625	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/ 23	0	–	1.25	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/ 12	0	–	0.14	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/ 12	0	–	0.007	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/ 23	0	–	0.625	–	1.99E+02	n	–	–	–	no
CFC-11	0	/ 14	0	–	1.25	–	5.82E+03	n	–	–	–	no
CFC-12	0	/ 3	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorinated fluorocarbon (Freon 113)	0	/ 11	0	–	6.25	–	2.98E+05	n	–	–	–	no
Chlorobenzene	0	/ 23	0	–	0.625	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/ 23	0	–	0.625	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/ 23	0	–	1.25	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/ 23	0	–	1.25	–	NA	n	–	–	–	no
Chloroform	0	/ 23	0	–	0.625	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/ 3	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/ 7	0	–	0.5	–	1.55E+03	n	–	–	–	no
Dibenzofuran	0	/ 4	0	–	0.5	–	9.53E+02	n	–	–	–	no
Dibromomethane	0	/ 3	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/ 7	0	–	0.5	–	9.71E+03	n	–	–	–	no
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	/ 11	0	–	1.25	–	2.79E+04	n	–	–	–	no
1,4-Dichlorobenzene	0	/ 18	0	–	1.25	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/ 3	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	1	/ 23	4.35	1.4	1.25	–	6.88E+03	c	no	2.03E-04	–	no
1,2-Dichloroethane	0	/ 23	0	–	0.625	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/ 23	0	–	0.625	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/ 9	0	–	0.007	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/ 23	0	–	0.625	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/ 23	0	–	1.25	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/ 23	0	–	0.625	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/ 12	0	–	0.007	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/ 23	0	–	0.625	–	5.10E+02	n	–	–	–	no
Ethanol	0	/ 3	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/ 3	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/ 12	0	–	0.007	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/ 3	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/ 7	0	–	0.5	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/ 12	0	–	0.071	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/ 12	0	–	0.007	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/ 12	0	–	0.071	–	2.31E+04	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/ 4	0	–	0.007	–	6.55E+04	c	–	–	–	no
Nitrobenzene	0	/ 3	0	–	0.3	–	5.20E+02	n	–	–	–	no

Table E.9-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Styrene (monomer)	0	/ 12	0	–	0.007	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/ 3	0	–	0.005	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/ 23	0	–	0.625	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	3	/ 23	13	1.2	0.625	–	6.43E+04	n	no	–	1.87E-05	no
1,1,2-Trichloroethane	0	/ 23	0	–	0.625	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/ 3	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/ 7	0	–	0.5	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/ 3	0	–	0.005	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/ 12	0	–	0.014	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/ 23	0	–	1.25	–	2.48E+02	c	–	–	–	no
Xylenes	1	/ 12	8.33	0.0086	0.007	–	3.13E+03	n	no	–	2.74E-06	no
Semi Volatile Organic Compounds												
Benzidine	0	/ 3	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/ 7	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/ 4	0	–	0.9	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0	/ 7	0	–	0.5	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/ 7	0	–	0.5	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	1	/ 7	14.3	0.46	0.5	–	4.76E+03	n	no	–	9.65E-05	no
4-Bromophenyl phenyl ether	0	/ 7	0	–	0.5	–	NA	n	–	–	–	no
p-Chloroaniline	0	/ 4	0	–	0.9	–	8.34E+02	c	–	–	–	no
4-Chloro-3-methylphenol	0	/ 7	0	–	0.9	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/ 7	0	–	0.5	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/ 7	0	–	0.9	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/ 7	0	–	0.5	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/ 7	0	–	0.5	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/ 7	0	–	0.5	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/ 7	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/ 3	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/ 7	0	–	0.5	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/ 7	0	–	0.5	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/ 7	0	–	0.5	–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/ 7	0	–	0.5	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/ 7	0	–	0.5	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/ 7	0	–	0.5	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/ 7	0	–	0.5	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/ 3	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/ 7	0	–	2	–	2.38E+01	n	–	–	–	no
2-Methylphenol	0	/ 4	0	–	0.5	–	1.19E+04	n	–	–	–	no
4-Methylphenol	0	/ 4	0	–	0.5	–	1.19E+03	n	–	–	–	no
2-Nitroaniline	0	/ 4	0	–	2	–	3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/ 4	0	–	2	–	3.88E+02	n	–	–	–	no
p-Nitroaniline	0	/ 4	0	–	2	–	9.37E+02	n	–	–	–	no
2-Nitrophenol	0	/ 7	0	–	0.5	–	NA	n	–	–	–	no
4-Nitrophenol	0	/ 7	0	–	2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/ 7	0	–	0.5	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/ 3	0	–	0.3	–	3.40E+04	c	–	–	–	no
n-Nitrosodiphenylamine & diphenylamine	0	/ 4	0	–	0.5	–	NA	n	–	–	–	no

Table E.9-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Pentachlorophenol	0	/ 7	0	–		2	–	1.03E+03	c	–	–	–	no
Phenol	0	/ 7	0	–		0.5	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/ 20	0	–		0.625	–	4.76E+03	n	–	–	–	no
2,4,5-Trichlorophenol	0	/ 4	0	–		0.5	–	2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/ 7	0	–		0.5	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/ 7	0	–		0.5	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/ 7	0	–		0.5	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/ 7	0	–		0.5	–	1.34E+04	n	–	–	–	no
Anthracene	0	/ 7	0	–		0.5	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/ 7	0	–		0.5	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/ 7	0	–		0.5	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/ 7	0	–		0.5	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/ 7	0	–		0.5	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/ 7	0	–		0.5	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/ 7	0	–		0.5	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/ 7	0	–		0.5	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/ 7	0	–		0.5	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/ 7	0	–		0.5	–	8.91E+03	n	–	–	–	no
Fluorene	0	/ 7	0	–		0.5	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/ 7	0	–		0.5	–	2.13E+02	c	–	–	–	no
2-Methylnaphthalene	0	/ 4	0	–		0.5	–	8.91E+02	n	–	–	–	no
Naphthalene	0	/ 7	0	–		0.5	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/ 7	0	–		0.5	–	7.15E+03	n	–	–	–	no
Pyrene	0	/ 7	0	–		0.5	–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	5	/ 10	50	2,600	!	71	–	NA	n	NA	–	–	no
Total Petroleum Hydrocarbons (TPH)	1	/ 3	33.3	21	!	13	–	NA	n	NA	–	–	no
Explosives													
2,6-Dinitrotoluene	0	/ 3	0	–		0.3	–	2.39E+02	n	–	–	–	no
Inorganics													
Arsenic	19	/ 24	79.2	53		0.61	no	6.54E+01	n	no	–	8.10E-01	no
Barium	14	/ 24	58.3	330		110	YES	4.35E+03	n	no	–	7.58E-02	no
Cadmium	12	/ 24	50	4		2.7	YES	3.09E+02	n	no	–	1.30E-02	no
Chromium	14	/ 21	66.7	9.6		7.3	YES	4.49E+02	n	no	–	2.14E-02	no
Chromium (Hexavalent)	0	/ 5	0	–		0.05	no	4.49E+02	n	–	–	–	no
Cyanide (Total)	0	/ 4	0	–		0.2	no	4.76E+03	n	–	–	–	no
Lead	15	/ 24	62.5	23		27	YES	8.00E+02	IEUBK	no	–	–	no
Mercury	0	/ 24	0	–		0.21	no	6.36E+01	n	–	–	–	no
Selenium	12	/ 24	50	95		0.64	no	1.55E+03	n	no	–	6.14E-02	no
Silver	0	/ 3	0	–		5.3	no	1.55E+03	n	–	–	–	no
Total Maximum / Screening Level Ratios											0.0002	1	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											2.E-09	1.0	

Target Organ Max/SL Ratios	
Kidney and Liver	0.09

Table E.9-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
							Brain		NA	
							Nasal		NA	
							Eyes		NA	
							Skin		0.8	
							Lungs		0.02	
							Gastrointestinal Tract and Forestomach		NA	
							Whole Body		0.06	
							Blood		NA	
							Nervous System		0.000003	
							Dental		NA	
							Red Blood Cells		NA	
							Glands		NA	
							Fetus		0.08	
							Immune System		NA	
							Development		NA	
							Reproduction		NA	
							Bone		NA	
							Not Available/ Not Reported		0.00002	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.9-HHRA-3
Selection of Constituents of Potential Concern in Soil for Future Vapor Intrusion Pathway
Soil All Depth
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	14	/	88	16	6.1	yes
Acetonitrile	0	/	2	0	–	no
Acetophenone	0	/	26	0	–	no
Acrolein	0	/	27	0	–	no
Acrylonitrile	0	/	52	0	–	no
Allyl chloride	0	/	2	0	–	no
Benzene	20	/	88	23	0.58	yes
Bis(2-chloroethyl)ether	0	/	65	0	–	no
Bis(2-chloroisopropyl)ether	0	/	65	0	–	no
Bromobenzene	0	/	25	0	–	no
Bromodichloromethane	0	/	92	0	–	no
Bromomethane	0	/	117	0	–	no
2-Butanone	0	/	88	0	–	no
tert-Butyl alcohol	0	/	25	0	–	no
n-Butylbenzene	9	/	25	36	5.28	yes
sec-Butylbenzene	9	/	25	36	5.57	yes
tert-Butylbenzene	0	/	25	0	–	no
Carbon disulfide	1	/	88	1	0.0065	yes
Carbon tetrachloride	1	/	117	1	3.9	yes
CFC-11	0	/	81	0	–	no
CFC-12	0	/	52	0	–	no
Chlorinated fluorocarbon (Freon 113)	1	/	29	3	12.5	yes
Chlorobenzene	0	/	117	0	–	no
Chlorobromomethane	0	/	25	0	–	no
2-Chlor-1,3-butadiene	0	/	2	0	–	no
Chloroethane	0	/	117	0	–	no
2-Chloroethyl vinyl ether	0	/	115	0	–	no
Chloroform	0	/	117	0	–	no
Chloromethane	0	/	50	0	–	no
2-Chlorophenol	0	/	65	0	–	no
2-Chlorotoluene	0	/	25	0	–	no
4-Chlorotoluene	0	/	25	0	–	no
Cymene	5	/	25	20	1.77	yes
Dibenzofuran	12	/	40	30	5.3	yes
1,2-Dibromoethane	0	/	27	0	–	no
Dibromomethane	0	/	52	0	–	no
1,2-Dichlorobenzene	0	/	66	0	–	no
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	/	29	0	–	no
1,4-Dichlorobenzene	0	/	95	0	–	no
1,4 Dichloro-2-butene	0	/	27	0	–	no
trans-1,4-Dichlorobutene	0	/	25	0	–	no
1,1-Dichloroethane	17	/	117	15	1.4	yes
1,2-Dichloroethane	0	/	117	0	–	no
1,1-Dichloroethylene	2	/	117	2	0.048	yes
cis-1,2-Dichloroethene	0	/	61	0	–	no
trans-1,2-Dichloroethene	0	/	117	0	–	no
Dichloromethane	1	/	117	1	0.02	yes
1,2-Dichloropropane	0	/	117	0	–	no
1,3-Dichloropropane	0	/	25	0	–	no
2,2-Dichloropropane	0	/	25	0	–	no
1,1-Dichloropropene	0	/	25	0	–	no
cis-1,3-Dichloropropene	0	/	88	0	–	no
trans-1,3-Dichloropropene	0	/	117	0	–	no
Ethyl methacrylate	0	/	27	0	–	no
Ethylbenzene	25	/	88	28	4.1	yes
Iodomethane	0	/	52	0	–	no
Isopropylbenzene	8	/	25	32	3.1	yes
m-Dichlorobenzene	0	/	66	0	–	no
Methyl methacrylate	0	/	2	0	–	no
Methyl n-butyl ketone	0	/	88	0	–	no
Methylacrylonitrile	0	/	2	0	–	no

Table E.9-HHRA-3
Selection of Constituents of Potential Concern in Soil for Future Vapor Intrusion Pathway
Soil All Depth
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Methylbenzene	2	/	88	2	0.038	yes
2-Methyl-1-propanol	0	/	2	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	88	0	–	no
Methyl tert-butyl ether (MTBE)	0	/	41	0	–	no
Nitrobenzene	0	/	53	0	–	no
Propionitrile	0	/	2	0	–	no
n-Propylbenzene	7	/	25	28	5.27	yes
Styrene (monomer)	0	/	88	0	–	no
Tetrachloroethene	0	/	50	0	–	no
1,1,1,2-Tetrachloroethane	0	/	27	0	–	no
1,1,2,2-Tetrachloroethane	0	/	117	0	–	no
1,1,1-Trichloroethane	27	/	117	23	21	yes
1,1,2-Trichloroethane	0	/	117	0	–	no
1,2,3-Trichlorobenzene	0	/	25	0	–	no
1,2,3-Trichloropropane	0	/	52	0	–	no
1,2,4-Trichlorobenzene	0	/	66	0	–	no
1,2,4-Trimethylbenzene	3	/	25	12	1.62	yes
1,3,5-Trimethylbenzene	4	/	27	15	0.736	yes
Trichloroethylene	0	/	50	0	–	no
Vinyl acetate	0	/	63	0	–	no
Vinyl chloride	0	/	117	0	–	no
m,p-Xylene	1	/	25	4	0.0149	yes
o-Xylene	1	/	25	4	0.0311	yes
Xylenes	27	/	63	43	7	yes
Semi Volatile Organic Compounds						
Isosafrole	0	/	2	0	–	no
n-Nitrosodi-n-butylamine	0	/	26	0	–	no
o,o,o-Triethyl phosphorothioate	0	/	2	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	8	/	65	12	2.6	yes
Acenaphthylene	0	/	65	0	–	no
Anthracene	11	/	65	17	6.16	yes
1-Chloronaphthalene	0	/	24	0	–	no
2-Chloronaphthalene	0	/	65	0	–	no
Fluorene	21	/	65	32	6.1	yes
1-Methylnaphthalene	10	/	24	42	23.7	yes
2-Methylnaphthalene	16	/	40	40	49	yes
Naphthalene	32	/	66	49	14	yes
Phenanthrene	27	/	65	42	18	yes

Notes:

– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] All detected volatile constituents were selected as COPCs for the vapor inhaltion pathway.

Table E.9-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)		Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds														
Acetone	0	/	9	0	–		0.01		2.20E+02	n	–	–	–	no
Acetophenone	0	/	9	0	–		5		8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	9	0	–		0.001		8.50E-02	c	–	–	–	no
Benzene	4	/	9	44.4	0.00292		0.001		1.40E-02	c	no	2.09E-01	–	no
Bis(2-chloroethyl)ether	0	/	9	0	–		5	^	1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	9	0	–		5		NA	c	–	–	–	no
Bromobenzene	0	/	9	0	–		0.001		NA	n	–	–	–	no
Bromodichloromethane	0	/	9	0	–		0.001		2.10E-02	c	–	–	–	no
Bromomethane	0	/	9	0	–		0.005		2.00E-02	n	–	–	–	no
2-Butanone	0	/	9	0	–		0.005		4.40E+02	n	–	–	–	no
n-Butylbenzene	2	/	9	22.2	0.00168		0.001		2.60E-01	n	no	–	6.46E-03	no
sec-Butylbenzene	5	/	9	55.6	0.00615		0.001		2.50E-01	n	no	–	2.46E-02	no
tert-Butylbenzene	0	/	9	0	–		0.001		2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	9	0	–		0.001		5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	9	0	–		0.001		5.00E-03	c	–	–	–	no
CFC-11	0	/	9	0	–		0.001		1.80E-01	n	–	–	–	no
CFC-12	0	/	9	0	–		0.001		1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	9	0	–		0.001		3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	9	0	–		0.001		NA	n	–	–	–	no
Chloroethane	0	/	9	0	–		0.001		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	9	0	–		0.005		NA	n	–	–	–	no
Chloroform	0	/	9	0	–		0.001		8.00E-02	c	–	–	–	no
Chloromethane	1	/	9	11.1	0.00342		0.001		6.70E-02	c	no	5.10E-02	–	no
2-Chlorophenol	0	/	9	0	–		5	^	1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	9	0	–		0.001		NA	n	–	–	–	no
4-Chlorotoluene	0	/	9	0	–		0.001		NA	n	–	–	–	no
Cymene	0	/	9	0	–		0.001		NA	n	–	–	–	no
Dibenzofuran	2	/	9	22.2	0.00871	!	0.005		NA	n	NA	–	–	no
1,2-Dibromoethane	0	/	9	0	–		0.001		3.60E-03	c	–	–	–	no
Dibromomethane	0	/	9	0	–		0.001		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	9	0	–		0.005		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	9	0	–		0.005		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	9	0	–		0.01		NA	c	–	–	–	no
1,1-Dichloroethane	3	/	9	33.3	0.0234		0.001		2.20E+00	c	no	1.06E-02	–	no
1,2-Dichloroethane	0	/	9	0	–		0.001		2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0	/	9	0	–		0.001		1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	9	0	–		0.001		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	9	0	–		0.001		1.80E-01	n	–	–	–	no
Dichloromethane	0	/	9	0	–		0.005		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	9	0	–		0.001		3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	9	0	–		0.001		NA	n	–	–	–	no
2,2-Dichloropropane	0	/	9	0	–		0.001		NA	n	–	–	–	no
1,1-Dichloropropene	0	/	9	0	–		0.001		NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	9	0	–		0.001		NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	9	0	–		0.001		NA	c	–	–	–	no
Ethylbenzene	0	/	9	0	–		0.001		7.00E-01	c	–	–	–	no

Table E.9-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/L)		Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Iodomethane	0	/ 9	0	–		0.005		NA	n	–	–	–	no
Isopropylbenzene	7	/ 9	77.8	0.00668		0.001		8.40E-03	n	no	–	7.95E-01	no
m-Dichlorobenzene	0	/ 9	0	–		0.005		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/ 9	0	–		0.005		NA	n	–	–	–	no
Methylbenzene	0	/ 9	0	–		0.001		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/ 9	0	–		0.005		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	3	/ 9	33.3	0.00394		0.001		1.20E+02	c	no	3.28E-05	–	no
Nitrobenzene	0	/ 9	0	–		5	^	2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/ 9	0	–		0.001		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/ 9	0	–		0.001		8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/ 9	0	–		0.001		1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/ 9	0	–		0.001		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/ 9	0	–		0.001		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/ 9	0	–		0.001		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/ 9	0	–		0.001		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/ 9	0	–		0.005		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/ 9	0	–		0.001		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/ 9	0	–		0.005		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	2	/ 9	22.2	0.00203		0.001		2.40E-02	n	no	–	8.46E-02	no
1,3,5-Trimethylbenzene	0	/ 9	0	–		0.001		2.50E-02	n	–	–	–	no
Trichloroethylene	0	/ 9	0	–		0.001		5.00E-03	c	–	–	–	no
Vinyl chloride	0	/ 9	0	–		0.001		2.50E-03	c	–	–	–	no
m,p-Xylene	0	/ 9	0	–		0.001		2.30E+01	n	–	–	–	no
o-Xylene	0	/ 9	0	–		0.001		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds													
n-Nitrosodi-n-butylamine	0	/ 9	0	–		5	^	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	1	/ 9	11.1	0.071	!	5		NA	n	NA	–	–	no
Acenaphthylene	0	/ 9	0	–		5		NA	n	–	–	–	no
Anthracene	1	/ 9	11.1	0.184	!	5		NA	n	NA	–	–	no
1-Chloronaphthalene	0	/ 9	0	–		5		NA	n	–	–	–	no
2-Chloronaphthalene	0	/ 9	0	–		5		NA	n	–	–	–	no
Fluorene	1	/ 9	11.1	0.0874	!	5		NA	n	NA	–	–	no
1-Methylnaphthalene	4	/ 9	44.4	0.28	!	0.005		NA	c	NA	–	–	no
2-Methylnaphthalene	4	/ 9	44.4	0.178		0.005		3.30E+00	n	no	–	5.39E-02	no
Naphthalene	4	/ 9	44.4	0.0703		0.005		1.50E-01	c	no	4.69E-01	–	no
Phenanthrene	2	/ 9	22.2	0.0113	!	0.005		NA	n	NA	–	–	no

Total Maximum / Screening Level Ratios	0.7	1
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	7.E-06	1.0

Target Organ Max/SL Ratios	
Kidney and Liver	0.8
Brain	NA
Nasal	NA
Eyes	NA
Skin	NA

Table E.9-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
						Lungs		0.1	
						Gastrointestinal Tract and Forestomach		NA	
						Whole Body		NA	
						Blood		NA	
						Nervous System		NA	
						Dental		NA	
						Red Blood Cells		NA	
						Glands		0.8	
						Fetus		NA	
						Immune System		NA	
						Development		NA	
						Reproduction		NA	
						Bone		NA	
						Not Available/ Not Reported		0.1	

Notes:

– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1×10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.9-HHRA-5
Summary of Constituents of Potential Concern and Exposure Point Concentrations for Future Industrial and Residential Scenarios
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	4.23E-01	–
Benzene	no	no	no	yes	no	–	–	3.98E-02	–
n-Butylbenzene	no	no	no	yes	no	–	–	7.67E-01	–
sec-Butylbenzene	no	no	no	yes	no	–	–	8.02E-01	–
Carbon disulfide	no	no	no	yes	no	–	–	6.50E-03 m	–
Carbon tetrachloride	no	no	no	yes	no	–	–	3.90E+00 m	–
Chlorinated fluorocarbon (Freon 113)	no	no	no	yes	no	–	–	1.25E+01 m	–
Cymene	no	no	no	yes	no	–	–	3.92E-01	–
Dibenzofuran	no	no	no	yes	no	–	–	1.17E+00	–
1,1-Dichloroethane	yes	yes	no	yes	no	1.40E+00 m	–	4.97E-02	–
1,1-Dichloroethylene	no	no	no	yes	no	–	–	4.80E-02 m	–
Dichloromethane	no	no	no	yes	no	–	–	2.00E-02 m	–
Ethylbenzene	no	no	no	yes	no	–	–	4.24E-01	–
Isopropylbenzene	no	no	no	yes	no	–	–	4.13E-01	–
Methylbenzene	no	no	no	yes	no	–	–	3.80E-02 m	–
n-Propylbenzene	no	no	no	yes	no	–	–	6.86E-01	–
1,1,1-Trichloroethane	yes	yes	no	yes	no	1.20E+00 m	–	1.73E+00	–
1,2,4-Trimethylbenzene	no	no	no	yes	no	–	–	1.62E+00 m	–
1,3,5-Trimethylbenzene	no	no	no	yes	no	–	–	7.36E-01 m	–
m,p-Xylene	no	no	no	yes	no	–	–	1.49E-02 m	–
o-Xylene	no	no	no	yes	no	–	–	3.11E-02 m	–
Xylenes	no	no	no	yes	no	–	–	1.06E+00	–
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	no	no	no	yes	no	–	–	3.26E-01	–
Anthracene	no	no	no	yes	no	–	–	1.03E+00	–
Fluorene	no	no	no	yes	no	–	–	1.08E+00	–
1-Methylnaphthalene	no	no	no	yes	no	–	–	6.11E+00	–
2-Methylnaphthalene	no	no	no	yes	no	–	–	1.09E+01	–
Naphthalene	no	no	no	yes	no	–	–	2.94E+00	–
Phenanthrene	no	no	no	yes	no	–	–	3.73E+00	–
Inorganics									
Arsenic	yes	yes	no	no	no	5.30E+01 m	–	–	–
Selenium	yes	yes	no	no	no	7.30E+01 m	–	–	–

Notes:
– = Not detected/ not analyzed/ not applicable.
CASN = Chemical abstracts registry number.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
Exposure to lead is evaluated by predicting resultant blood lead levels using the arithmetic average (avg).
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.9.HHRA-6
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
67641	4.23E+02	Acetone
71432	3.98E+01	Benzene
104518	7.67E+02	n-Butylbenzene
135988	8.02E+02	sec-Butylbenzene
75150	6.50E+00	Carbon disulfide
56235	3.90E+03	Carbon tetrachloride
76131	1.25E+04	1,1,2-Trichloro-1,2,2-trifluoroethane
99876	3.92E+02	p-Isopropyltoluene
132649	5.30E+03	Dibenzofuran
75343	4.97E+01	1,1-Dichloroethane
75354	4.80E+01	1,1-Dichloroethylene
75092	2.00E+01	Methylene chloride
100414	4.24E+02	Ethylbenzene
98828	4.13E+02	Cumene
108883	3.80E+01	Toluene
103651	6.86E+02	n-Propylbenzene
71556	1.73E+03	1,1,1-Trichloroethane
95636	1.62E+03	1,2,4-Trimethylbenzene
108678	7.36E+02	1,3,5-Trimethylbenzene
108383	1.49E+01	m-Xylene
95476	3.11E+01	o-Xylene
1330207	1.06E+03	Xylenes (total)
83329	2.60E+03	Acenaphthene
120127	6.16E+03	Anthracene
86737	1.08E+03	Fluorene
90120	6.11E+03	1-Methylnaphthalene
91576	1.09E+04	2-Methylnaphthalene
91203	2.94E+03	Naphthalene
85018	3.73E+03	Phenanthrene

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G45)					
16.7	15	1310	0	1310			SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SIL	1.55	0.44	0.26	0.0015					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.9.HHRA-7
Intercalculations
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	2.84E+03	1.65E+00	2.71E-03	4.20E+06	5.58E-05	1.59E-01
Benzene	8,053	3.75E-03	1.58E-01	1.77E-04	1.51E-03	1.51E-03	2.29E+04	1.65E+00	1.51E-03	7.57E+11	5.58E-05	1.28E+00
n-Butylbenzene	11,763	7.43E-03	3.13E-01	1.77E-04	9.77E-04	9.77E-04	1.28E+05	1.65E+00	9.77E-04	2.26E+18	5.58E-05	7.15E+00
sec-Butylbenzene	107,393	7.72E-05	3.24E-03	1.77E-04	1.12E-03	1.12E-03	1.61E+03	1.65E+00	1.12E-03	9.86E+15	5.58E-05	8.98E-02
Carbon disulfide	6,630	2.19E-02	9.22E-01	1.77E-04	1.78E-03	1.78E-03	1.75E+04	1.65E+00	1.78E-03	1.18E+10	5.58E-05	9.75E-01
Carbon tetrachloride	7,791	2.08E-02	8.75E-01	1.77E-04	1.33E-03	1.33E-03	6.43E+06	1.65E+00	1.33E-03	2.68E+13	5.58E-05	3.59E+02
1,1,2-Trichloro-1,2,2-trifluoroethane	6,883	3.44E-01	1.45E+01	1.77E-04	1.33E-03	1.33E-03	9.74E+06	1.65E+00	1.33E-03	2.71E+13	5.58E-05	5.44E+02
p-Isopropyltoluene	11,255	6.38E-03	2.68E-01	1.77E-04	1.34E-03	1.34E-03	4.82E+04	1.65E+00	1.34E-03	2.29E+13	5.58E-05	2.69E+00
Dibenzofuran	87,214	1.86E-07	7.80E-06	1.77E-04	4.52E-02	4.52E-02	5.24E+00	1.65E+00	4.52E-02	2.49E+00	7.25E-05	3.80E-04
1,1-Dichloroethane	7,376	3.92E-03	1.65E-01	1.77E-04	1.27E-03	1.27E-03	3.50E+04	1.65E+00	1.27E-03	1.20E+14	5.58E-05	1.95E+00
1,1-Dichloroethylene	6,348	1.92E-02	8.05E-01	1.77E-04	1.54E-03	1.54E-03	1.11E+05	1.65E+00	1.54E-03	4.34E+11	5.58E-05	6.17E+00
Methylene chloride	6,963	1.56E-03	6.56E-02	1.77E-04	1.74E-03	1.74E-03	6.80E+03	1.65E+00	1.74E-03	2.05E+10	5.58E-05	3.80E-01
Ethylbenzene	10,078	4.83E-03	2.03E-01	1.77E-04	1.29E-03	1.29E-03	1.17E+05	1.65E+00	1.29E-03	8.85E+13	5.58E-05	6.53E+00
Cumene	12,550	7.96E-03	3.35E-01	1.77E-04	1.11E-03	1.11E-03	1.47E+05	1.65E+00	1.11E-03	1.27E+16	5.58E-05	8.21E+00
Toluene	9,082	4.27E-03	1.80E-01	1.77E-04	1.49E-03	1.49E-03	1.48E+04	1.65E+00	1.49E-03	1.05E+12	5.58E-05	8.25E-01
n-Propylbenzene	11,281	6.18E-03	2.60E-01	1.77E-04	1.03E-03	1.03E-03	1.71E+05	1.65E+00	1.03E-03	2.54E+17	5.58E-05	9.55E+00
1,1,1-Trichloroethane	7,813	1.18E-02	4.94E-01	1.77E-04	1.34E-03	1.34E-03	2.19E+06	1.65E+00	1.34E-03	2.65E+13	5.58E-05	1.22E+02
1,2,4-Trimethylbenzene	11,608	3.51E-03	1.47E-01	1.77E-04	1.04E-03	1.04E-03	1.08E+05	1.65E+00	1.04E-03	1.73E+17	5.58E-05	6.02E+00
1,3,5-Trimethylbenzene	11,591	3.35E-03	1.41E-01	1.77E-04	1.03E-03	1.03E-03	4.69E+04	1.65E+00	1.03E-03	2.22E+17	5.58E-05	2.62E+00
m-Xylene	10,177	4.48E-03	1.88E-01	1.77E-04	1.20E-03	1.20E-03	3.51E+03	1.65E+00	1.20E-03	8.69E+14	5.58E-05	1.96E-01
o-Xylene	10,328	3.14E-03	1.32E-01	1.77E-04	1.49E-03	1.49E-03	5.65E+03	1.65E+00	1.49E-03	1.02E+12	5.58E-05	3.15E-01
Xylenes (total)	10,158	4.06E-03	1.71E-01	1.77E-04	1.22E-03	1.22E-03	4.24E+05	1.65E+00	1.22E-03	4.34E+14	5.58E-05	2.37E+01
Acenaphthene	16,041	7.12E-05	2.99E-03	1.77E-04	8.70E-04	8.70E-04	7.22E+02	1.65E+00	8.70E-04	4.08E+20	5.58E-05	4.03E-02
Anthracene	16,915	2.87E-05	1.21E-03	1.77E-04	9.28E-04	9.28E-04	1.66E+02	1.65E+00	9.28E-04	2.11E+19	5.58E-05	9.28E-03
Fluorene	16,167	2.90E-05	1.22E-03	1.77E-04	9.97E-04	9.97E-04	6.32E+01	1.65E+00	9.97E-04	9.69E+17	5.58E-05	3.53E-03
1-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	9.38E-04	1.39E+04	1.65E+00	9.38E-04	1.27E+19	5.58E-05	7.74E-01
2-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	9.38E-04	2.47E+04	1.65E+00	9.38E-04	1.27E+19	5.58E-05	1.38E+00
Naphthalene	12,844	2.59E-04	1.09E-02	1.77E-04	1.05E-03	1.05E-03	1.01E+04	1.65E+00	1.05E-03	1.21E+17	5.58E-05	5.64E-01

Phenanthrene	13,840	1.19E-05	5.02E-04	1.77E-04	1.61E-03	1.61E-03	4.18E+01	1.65E+00	1.61E-03	1.42E+11	5.58E-05	2.33E-03

Table E.9-HHRA-8

Estimates of Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Acetone	4.23E-01		1.59E-01
Benzene	3.98E-02		1.28E+00
n-Butylbenzene	7.67E-01		7.15E+00
sec-Butylbenzene	8.02E-01		8.98E-02
Carbon disulfide	6.50E-03	m	9.75E-01
Carbon tetrachloride	3.90E+00	m	3.59E+02
Chlorinated fluorocarbon (Freon 113)	1.25E+01	m	5.44E+02
Cymene	3.92E-01		2.69E+00
Dibenzofuran	1.17E+00		3.80E-04
1,1-Dichloroethane	4.97E-02		1.95E+00
1,1-Dichloroethylene	4.80E-02	m	6.17E+00
Dichloromethane	2.00E-02	m	3.80E-01
Ethylbenzene	4.24E-01		6.53E+00
Isopropylbenzene	4.13E-01		8.21E+00
Toluene	3.80E-02	m	8.25E-01
n-Propylbenzene	6.86E-01		9.55E+00
1,1,1-Trichloroethane	1.73E+00		1.22E+02
1,2,4-Trimethylbenzene	1.62E+00	m	6.02E+00
1,3,5-Trimethylbenzene	7.36E-01	m	2.62E+00
m,p-Xylene	1.49E-02	m	1.96E-01
o-Xylene	3.11E-02	m	3.15E-01
Xylenes	1.06E+00		2.37E+01
Acenaphthene	3.26E-01		4.03E-02
Anthracene	1.03E+00		9.28E-03
Fluorene	1.08E+00		3.53E-03
1-Methylnaphthalene	6.11E+00		7.74E-01
2-Methylnaphthalene	1.09E+01		1.38E+00
Naphthalene	2.94E+00		5.64E-01
Phenanthrene	3.73E+00		2.33E-03

References:

USEPA. 2 Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2 User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2 Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2 Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

$\mu g/m^3$ Micrograms per cubic meter.
mg/kg Milligrams per kilogram.
m Maximum.

[a] EPCs are presented in table Table E.9-HHRA-5.
[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a,b), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.9-HHRA-9
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Soil (0-2 foot Depth Interval)
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCs (mg/kg)		VF *or* PEF [a] (m³/kg)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
					ELCRo	ELCRd	ELCRi	ELCR		HQo	HQd	HQi	HI	
Volatile Organic Compounds														
1,1-Dichloroethane	1.40E+00	m	4.77E+03	V	2.5E-09	–	3.4E-08	4E-08	<1%	6.2E-06	–	NA	6E-06	<1%
1,1,1-Trichloroethane	1.20E+00	m	3.46E+03	V	NA	NA	NA	NA	–	5.3E-07	–	1.4E-05	1E-05	<1%
Inorganics														
Arsenic	5.30E+01	m	6.61E+09	P	2.5E-05	5.0E-06	2.5E-09	3E-05	100%	1.6E-01	3.1E-02	1.1E-04	2E-01	94%
Selenium	7.30E+01	m	6.61E+09	P	NA	NA	NA	NA	–	1.3E-02	–	1.1E-07	1E-02	6%
Total Risk or Hazard					Total ELCR			3E-05	100%	Total HI			0.2	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	NA	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.01	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	0.2
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	0.00002

[a] Minimum of the volatilization factor (identified with [V]) and the particulate emission factor (identified with [P]), both derived on Table E.2-9.

–	Not applicable.	HQ	Hazard quotient.	NA	Not available.
ELCR	Excess lifetime cancer risk.	m	EPC based on maximum.	PEF	Particulate emission factor.
EPCs	Exposure point concentration in surface soil (mg/kg).	m^3/kg	Cubic meters per kilogram.	VF	Volatilization factor.
HI	Hazard index (sum of the HQs).	mg/kg	Milligrams per kilogram.		

Equations:

ELCRo = (EPCs × 1 × 100 × 225 × 25 × CSFo) / (1,000,000 × 70 × 25,550)
ELCRd = (EPCs × 3,300 × 0.2 × ABSd × 225 × 25 × CSFa) / (1,000,000 × 70 × 25,550)
ELCRi = (EPCs × 8 × 0.042 ×225 × 25 × URF) / ([VF or PEF] × 25,550)

HQo = (EPCs × 1 × 100 × 225 × 25) / (1,000,000 × 70 × 9,125 × RfDo)
HQd = (EPCs × 3,300 × 0.2 × ABSd × 225 × 25) / (1,000,000 × 70 × 9,125 × RfDa)
HQi = (EPCs × 8 × 0.042 × 225 × 25) / ([VF or PEF] × 9,125 × RfC)

Table E.9-HHRA-10
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
			ELCRi			HQi	
Volatile Organic Compounds							
Acetone	1.59E-01	NA	NA	–	3.1E+01	1E-06	<1%
Benzene	1.28E+00	7.80E-03	7.3E-07	<1%	3.0E-02	9E-03	<1%
n-Butylbenzene	7.15E+00	NA	NA	–	1.0E+00	1E-03	<1%
sec-Butylbenzene	8.98E-02	NA	NA	–	4.0E-01	5E-05	<1%
Carbon disulfide	9.75E-01	NA	NA	–	7.0E-01	3E-04	<1%
Carbon tetrachloride	3.59E+02	6.00E-03	1.6E-04	99%	1.0E-01	7E-01	71%
Chlorinated fluorocarbon (Freon 113)	5.44E+02	NA	NA	–	3.0E+01	4E-03	<1%
Cymene	2.69E+00	NA	NA	–	NA	NA	–
Dibenzofuran	3.80E-04	NA	NA	–	NA	NA	–
1,1-Dichloroethane	1.95E+00	1.60E-03	2.3E-07	<1%	NA	NA	–
1,1-Dichloroethylene	6.17E+00	NA	NA	–	2.0E-01	6E-03	<1%
Dichloromethane	3.80E-01	4.70E-04	1.3E-08	<1%	1.0E+00	8E-05	<1%
Ethylbenzene	6.53E+00	NA	NA	–	1.0E+00	1E-03	<1%
Isopropylbenzene	8.21E+00	NA	NA	–	4.0E-01	4E-03	<1%
Toluene	8.25E-01	NA	NA	–	5.0E+00	3E-05	<1%
n-Propylbenzene	9.55E+00	NA	NA	–	1.0E+00	2E-03	<1%
1,1,1-Trichloroethane	1.22E+02	NA	NA	–	5.0E+00	5E-03	<1%
1,2,4-Trimethylbenzene	6.02E+00	NA	NA	–	7.0E-03	2E-01	17%
1,3,5-Trimethylbenzene	2.62E+00	NA	NA	–	NA	NA	–
m,p-Xylene	1.96E-01	NA	NA	–	7.0E-01	6E-05	<1%
o-Xylene	3.15E-01	NA	NA	–	7.0E-01	9E-05	<1%
Xylenes	2.37E+01	NA	NA	–	1.0E-01	5E-02	5%
Acenaphthene	4.03E-02	NA	NA	–	NA	NA	–
Anthracene	9.28E-03	NA	NA	–	NA	NA	–
Fluorene	3.53E-03	NA	NA	–	NA	NA	–
1-Methylnaphthalene	7.74E-01	NA	NA	–	NA	NA	–
2-Methylnaphthalene	1.38E+00	NA	NA	–	NA	NA	–
Naphthalene	5.64E-01	NA	NA	–	3.0E-03	4E-02	4%
Phenanthrene	2.33E-03	NA	NA	–	NA	NA	–
		Total ELCR	2E-04	NA	Total HI	1	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	1	HI (gastrointestinal tract) = NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.1	HI (nasal, lung) = 0.04
NA - Not available	HI (blood) =	0.01	HI (eyes, nails, hair, skin) = NA
NR - None reported	HI (fetus, developmental) =	0.001	HI (NA, NR) = 0.2

Table E.9-HHRA-10
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

[a] From Table E.9-HHRA-8.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.9-HHRA-11
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Soil (0-2 foot Depth Interval)
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCs (mg/kg)		VF *or* PEF [a] (m³/kg)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
					ELCRo	ELCRd	ELCRi	ELCR		HQo	HQd	HQi	HI	
Volatile Organic Compounds														
1,1-Dichloroethane	1.40E+00	m	4.77E+03	V	1.2E-08	–	1.9E-07	2E-07	<1%	8.9E-05	–	NA	9E-05	<1%
1,1,1-Trichloroethane	1.20E+00	m	3.46E+03	V	NA	NA	NA	NA	–	7.7E-06	–	6.6E-05	7E-05	<1%
Inorganics														
Arsenic	5.30E+01	m	6.61E+09	P	1.2E-04	2.9E-04	1.4E-08	4E-04	100%	2.3E+00	1.9E-01	5.1E-04	2E+00	93%
Selenium	7.30E+01	m	6.61E+09	P	NA	NA	NA	NA	–	1.9E-01	–	5.3E-07	2E-01	7%
Total Risk or Hazard					Total ELCR			4E-04	100%	Total HI **			3	100%

** HI Segregated by Target Site/Critical Effect:				
CNS - Central nervous system	HI (liver, kidney) =	NA	HI (gastrointestinal tract) =	NA
NA - Not available	HI (CNS, whole body, immune system) =	0.2	HI (nasal, lung) =	NA
NR - None reported	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	2
	HI (fetus, developmental) =	NA	HI (NA, NR) =	0.0002

[a] Minimum of the volatilization factor (identified with [V]) and the particulate emission factor (identified with [P]), both derived on Table E.2-9.

–	Not applicable.	HQ	Hazard quotient.	NA	Not available.
ELCR	Excess lifetime cancer risk.	m	EPC based on maximum.	PEF	Particulate emission factor.
EPCs	Exposure point concentration in surface soil (mg/kg).	m^3/kg	Cubic meters per kilogram.	VF	Volatilization factor.
HI	Hazard index (sum of the HQs).	mg/kg	Milligrams per kilogram.		

Equations:

ELCRo = (EPCs × 1 × 114 × 350 × CSFo) / (1,000,000 × 25,550)
ELCRd = (EPCs × 8,811 × ABSd × 350 × CSFa) / (1,000,000 × 25,550)
ELCRi = (EPCs × 24 × 0.042 ×350 × 30 × URF) / ([VF or PEF] × 25,550)

HQo = (EPCs × 1 × 200 × 350 × 6) / (1,000,000 × 15 × 2,190 × RfDo)
HQd = (EPCs × 2,800 × 0.2 × ABSd × 350 × 6) / (1,000,000 × 15 × 2,190 × RfDa)
HQi = (EPCs × 24 × 0.042 × 350 × 6) / ([VF or PEF] × 2,190 × RfC)

Table E.9-HHRA-12
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
			ELCRi			HQi	
Volatile Organic Compounds							
Acetone	1.59E-01	NA	NA	–	3.1E+01	5E-06	<1%
Benzene	1.28E+00	7.80E-03	4E-06	<1%	3.0E-02	4E-02	<1%
n-Butylbenzene	7.15E+00	NA	NA	–	1.0E+00	7E-03	<1%
sec-Butylbenzene	8.98E-02	NA	NA	–	4.0E-01	2E-04	<1%
Carbon disulfide	9.75E-01	NA	NA	–	7.0E-01	1E-03	<1%
Carbon tetrachloride	3.59E+02	6.00E-03	9E-04	99%	1.0E-01	3E+00	71%
Chlorinated fluorocarbon (Freon 113)	5.44E+02	NA	NA	–	3.0E+01	2E-02	<1%
Cymene	2.69E+00	NA	NA	–	NA	NA	–
Dibenzofuran	3.80E-04	NA	NA	–	NA	NA	–
1,1-Dichloroethane	1.95E+00	1.60E-03	1E-06	<1%	NA	NA	–
1,1-Dichloroethylene	6.17E+00	NA	NA	–	2.0E-01	3E-02	<1%
Dichloromethane	3.80E-01	4.70E-04	7E-08	<1%	1.0E+00	4E-04	<1%
Ethylbenzene	6.53E+00	NA	NA	–	1.0E+00	6E-03	<1%
Isopropylbenzene	8.21E+00	NA	NA	–	4.0E-01	2E-02	<1%
Toluene	8.25E-01	NA	NA	–	5.0E+00	2E-04	<1%
n-Propylbenzene	9.55E+00	NA	NA	–	1.0E+00	9E-03	<1%
1,1,1-Trichloroethane	1.22E+02	NA	NA	–	5.0E+00	2E-02	<1%
1,2,4-Trimethylbenzene	6.02E+00	NA	NA	–	7.0E-03	8E-01	17%
1,3,5-Trimethylbenzene	2.62E+00	NA	NA	–	NA	NA	–
m,p-Xylene	1.96E-01	NA	NA	–	7.0E-01	3E-04	<1%
o-Xylene	3.15E-01	NA	NA	–	7.0E-01	4E-04	<1%
Xylenes	2.37E+01	NA	NA	–	1.0E-01	2E-01	5%
Acenaphthene	4.03E-02	NA	NA	–	NA	NA	–
Anthracene	9.28E-03	NA	NA	–	NA	NA	–
Fluorene	3.53E-03	NA	NA	–	NA	NA	–
1-Methylnaphthalene	7.74E-01	NA	NA	–	NA	NA	–
2-Methylnaphthalene	1.38E+00	NA	NA	–	NA	NA	–
Naphthalene	5.64E-01	NA	NA	–	3.0E-03	2E-01	4%
Phenanthrene	2.33E-03	NA	NA	–	NA	NA	–
		Total ELCR	9E-04	100%	Total HI **	5	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	3	HI (gastrointestinal tract) = NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.2	HI (nasal, lung) = 0.2
NA - Not available	HI (blood) =	0.04	HI (eyes, nails, hair, skin) = NA
NR - None reported	HI (fetus, developmental) =	0.01	HI (NA, NR) = 1

Table E.9-HHRA-12
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

[a] From Table E.9-HHRA-8.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.9-HHRA-13
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 142 (SWMU 142)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Direct Contact with Soil (0-2 foot)	3E-05	0.2
Vapor Migration from Soil to Indoor Air	**2E-04**	1
TOTAL SITE RISKS:	**2E-04**	1
Hypothetical Future Resident Receptor (Adult and Child)		
Direct Contact with Soil (0-2 foot)	**4E-04**	**3**
Vapor Migration from Soil to Indoor Air	**9E-04**	**5**
TOTAL SITE RISKS:	**1E-03**	**7**

[a] Cancer risk estimates exceeding $1x10^{-4}$ and non-cancer hazard estimates exceeding one are in bold.
[b] For HIs exceeding 1, target organ HIs were calculated.

Target Organ HI	Future Resident
HI (liver, kidney) =	3
HI (CNS, whole body, immune system) =	0.2
HI (blood) =	0.04
HI (fetus, developmental) =	0.01
HI (gastrointestinal tract) =	NA
HI (nasal, lung) =	0.2
HI (eyes, nails, hair, skin) =	2
HI (NA, NR) =	1

CNS Central nervous system.
HI Hazard index.
NA Not available.
NR Not reported.

Table E.9.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	2	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	1	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	1	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	1	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
Bromodichloromethane	0	/	6	0	–	0.625	^	no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	7	0	–	1.25	^	no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	2	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	2	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	7	0	–	0.625		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	6	0	–	1.25		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	1	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorinated fluorocarbon (Freon 113)	0	/	5	0	–	6.25		no	NA		NA	no	ND
Chlorobenzene	0	/	7	0	–	0.625	^	no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	7	0	–	0.625		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	7	0	–	1.25		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	7	0	–	1.25		no	NA		NA	no	ND
Chloroform	0	/	7	0	–	0.625	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	1	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	1	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	1	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	1	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	1	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,2-Dichlorobenzene/1,3-Dichlorobenze	0	/	5	0	–	1.25		no	2.96	*R5s*	NA	no	ND
1,4-Dichlorobenzene	0	/	6	0	–	1.25	^	no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	1	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	1	/	7	14.3	1.4	0.625		no	20.1	*R5*	0.07	no	HQ ≤ 1
1,2-Dichloroethane	0	/	7	0	–	0.625	^	no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	7	0	–	0.625		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	1	0	–	0.005		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	7	0	–	0.625		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	7	0	–	1.25		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	7	0	–	0.625		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	2	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	7	0	–	0.625	^	no	0.398	*R5*	NA	no	ND
Ethanol	0	/	1	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	1	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	1	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	2	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	2	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	1	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	2	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	1	0	–	0.005		no	9.92	*R5*	NA	no	ND

Table E.9.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,1,2,2-Tetrachloroethane	0	/	7	0	–	0.625	^	no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	2	/	7	28.6	1.2	0.625		no	29.8	*R5*	0.04	no	HQ ≤ 1
1,1,2-Trichloroethane	0	/	7	0	–	0.625		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	1	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	1	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	2	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	7	0	–	1.25	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	1	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	1	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	1	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	1	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	1	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	1	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	1	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	1	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	1	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	1	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	1	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	1	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	1	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	1	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	1	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	^	no	0.0000321	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	1	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	1	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	1	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	1	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	1	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	1	0	–	0.3		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	6	0	–	0.625		no	15.9	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	1	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	1	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	1	0	–	0.3		no	5.21	*R5*	NA	no	ND

Table E.9.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Benzo(a)pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	1	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	1	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	1	0	–	0.3		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	1	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	1	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	1	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	1	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Petroleum hydrocarbons	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	1	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	4	/	6	66.7	53	0.61		no	18	*EcoSSL*	3	**YES**	HQ > 1
Barium	4	/	6	66.7	330	92		YES	330	*EcoSSL*	1	no	≤ BKGD
Cadmium	4	/	6	66.7	1.8	2.3		YES	0.36	*EcoSSL*	5	no	≤ BKGD
Chromium	4	/	5	80	4.8	4.5		YES	26	*EcoSSL*	0.2	no	≤ BKGD
Chromium (Hexavalent)	0	/	1	0	–	0.05		no	130	*EcoSSL*	NA	no	ND
Lead	4	/	6	66.7	18	23		YES	11	*EcoSSL*	2	no	≤ BKGD
Mercury	0	/	6	0	–	0.09		no	0.1	*R4*	NA	no	ND
Selenium	4	/	6	66.7	73	0.61		no	0.52	*EcoSSL*	100	**YES**	HQ > 1
Silver	0	/	1	0	–	4.6	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.9.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	12	0	–	0.14		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	3	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	3	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	12	0	–	0.007		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	7	0	–	0.5		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	7	0	–	0.5		no	NA		NA	no	ND
Bromodichloromethane	0	/	20	0	–	0.625	^	no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	23	0	–	1.25	^	no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	12	0	–	0.14		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	12	0	–	0.007		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	23	0	–	0.625		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	14	0	–	1.25		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	3	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorinated fluorocarbon (Freon 113)	0	/	11	0	–	6.25		no	NA		NA	no	ND
Chlorobenzene	0	/	23	0	–	0.625	^	no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	23	0	–	0.625		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	23	0	–	1.25		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	23	0	–	1.25		no	NA		NA	no	ND
Chloroform	0	/	23	0	–	0.625	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	3	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	7	0	–	0.5	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0	/	4	0	–	0.5		no	600	*R4s*	NA	no	ND
Dibromomethane	0	/	3	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	7	0	–	0.5		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	7	0	–	0.5		no	37.7	*R5*	NA	no	ND
1,2-Dichlorobenzene/1,3-Dichlorobenzen	0	/	11	0	–	1.25		no	2.96	*R5s*	NA	no	ND
1,4-Dichlorobenzene	0	/	18	0	–	1.25	^	no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	3	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	1	/	23	4.35	1.4	1.25		no	20.1	*R5*	0.07	no	HQ ≤ 1
1,2-Dichloroethane	0	/	23	0	–	0.625	^	no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	23	0	–	0.625		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	9	0	–	0.007		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	23	0	–	0.625		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	23	0	–	1.25		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	23	0	–	0.625		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	12	0	–	0.007		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	23	0	–	0.625	^	no	0.398	*R5*	NA	no	ND
Ethanol	0	/	3	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	3	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	12	0	–	0.007		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	3	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	12	0	–	0.071		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	12	0	–	0.007		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	12	0	–	0.071		no	443	*R5*	NA	no	ND
Methyl tert-butyl ether (MTBE)	0	/	4	0	–	0.007		no	NA		NA	no	ND
Nitrobenzene	0	/	3	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	12	0	–	0.007		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	3	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	23	0	–	0.625	^	no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	3	/	23	13	1.2	0.625		no	29.8	*R5*	0.04	no	HQ ≤ 1
1,1,2-Trichloroethane	0	/	23	0	–	0.625		no	28.6	*R5*	NA	no	ND

Table E.9.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,2,3-Trichloropropane	0	/	3	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	7	0	–	0.5		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	3	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	12	0	–	0.014		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	23	0	–	1.25	^	no	0.01	*R4*	NA	no	ND
Xylenes	1	/	12	8.33	0.0086	0.007		no	0.05	*R4*	0.2	no	HQ ≤ 1
Semi Volatile Organic Compounds													
Benzidine	0	/	3	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	7	0	–	2		no	NA		NA	no	ND
Benzyl alcohol	0	/	4	0	–	0.9		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	7	0	–	0.5	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	7	0	–	0.5	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	1	/	7	14.3	0.46	0.5		no	0.1	*R4*	5	**YES**	HQ > 1
4-Bromophenyl phenyl ether	0	/	7	0	–	0.5		no	NA		NA	no	ND
p-Chloroaniline	0	/	4	0	–	0.9		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	7	0	–	0.9		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	7	0	–	0.5		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	7	0	–	0.9	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	7	0	–	0.5		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	7	0	–	0.5		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	7	0	–	0.5	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	7	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	3	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	7	0	–	0.5		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	7	0	–	0.5		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	7	0	–	0.5		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	7	0	–	0.5	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	7	0	–	0.5	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	7	0	–	0.5		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	7	0	–	0.5		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	3	0	–	0.33	^	no	3.2E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	7	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	4	0	–	0.5		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	4	0	–	0.5		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	4	0	–	2		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	4	0	–	2		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	4	0	–	2		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	7	0	–	0.5		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	7	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	7	0	–	0.5		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	3	0	–	0.3		no	20	*R4*	NA	no	ND
n-Nitrosodiphenylamine & diphenylamine	0	/	4	0	–	0.5		no	20	*R4s*	NA	no	ND
Pentachlorophenol	0	/	7	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	7	0	–	0.5		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	20	0	–	0.625		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	4	0	–	0.5		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	7	0	–	0.5		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	7	0	–	0.5		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	7	0	–	0.5		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	7	0	–	0.5		no	682	*R5*	NA	no	ND
Anthracene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND

Table E.9.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Benzo(a)anthracene	0	/	7	0	–	0.5		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	7	0	–	0.5	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	7	0	–	0.5		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	7	0	–	0.5		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	7	0	–	0.5		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	7	0	–	0.5	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	7	0	–	0.5		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	7	0	–	0.5		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	7	0	–	0.5		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	4	0	–	0.5		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	5	/	10	50	2,600	71		no	10,000	*API*	0.3	no	HQ ≤ 1
Petroleum hydrocarbons	1	/	3	33.3	21	13		no	10,000	*API*	0.002	no	HQ ≤ 1
Total Petroleum Hydrocarbons (TPH)	1	/	3	33.3	21	13		no	10,000	*API*	0.002	no	HQ ≤ 1
Explosives													
2,6-Dinitrotoluene	0	/	3	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	19	/	24	79.2	53	0.61		no	18	*EcoSSL*	3	**YES**	HQ > 1
Barium	14	/	24	58.3	330	110		YES	330	*EcoSSL*	1	no	≤ BKGD
Cadmium	12	/	24	50	4	2.7		YES	0.36	*EcoSSL*	10	no	≤ BKGD
Chromium	14	/	21	66.7	9.6	7.3		YES	26	*EcoSSL*	0.4	no	≤ BKGD
Chromium (Hexavalent)	0	/	5	0	–	0.05		no	130	*EcoSSL*	NA	no	ND
Cyanide (Total)	0	/	4	0	–	0.2		no	5	*R4s*	NA	no	ND
Lead	15	/	24	62.5	23	27		YES	11	*EcoSSL*	2	no	≤ BKGD
Mercury	0	/	24	0	–	0.21	^	no	0.1	*R4*	NA	no	ND
Selenium	12	/	24	50	95	0.64		no	0.52	*EcoSSL*	200	**YES**	HQ > 1
Silver	0	/	3	0	–	5.3	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.9.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Arsenic	53	m	18	*EcoSSL*	3	**YES**	**HQ > 1**	YES
Selenium	73	m	0.52	*EcoSSL*	100	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.9.ERA-4
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Semi Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	0.46	m	0.1	*R4*	5	**YES**	**HQ > 1**	no
Inorganics								
Arsenic	23.71		18	*EcoSSL*	1	no	HQ • 1	YES
Selenium	40.04		0.52	*EcoSSL*	80	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.9.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]					
	BERA COPEC?		0-2 ft bgs			0-10 ft bgs		
	0-2 ft bgs	0-10 ft bgs	Maximum		Refined	Maximum		Refined
Constituent			**Scenario**		**Scenario**	**Scenario**		**Scenario**
Semi Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	no	YES	NA		NA	0.46	m	0.23
Inorganics								
Arsenic	YES	no	53	m	16.6	NA		NA
Selenium	YES	YES	73	m	32.4	40.04		27.3

Notes:

BERA = Baseline Ecological Risk Assessment.

COPEC = Constituent of Potential Ecological Concern.

ft bgs = Feet below ground surface.

mg/kg = Milligrams per kilogram.

NA = Not available or applicable.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.9.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Arsenic	53	m	4.56E-03	2.42E-01	0.27	10	1	0.03	0.3
Selenium	73	m	5.80E+01	6.95E+00	4.9	1.4	0.14	3.5	35

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Arsenic	16.6	1.76E+00	4.56E-03	2.93E-01	7.57E-02	0.086	10	1	0.009	0.09
Selenium	32.4	1.19E+01	2.36E+01	1.98E+00	2.84E+00	2	1.4	0.14	1.43	14.3

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Arsenic	53	m	3.99E+00	6.66E-01	1	10	1	0.1	1
Selenium	73	m	2.15E+01	3.60E+00	4.6	1.4	0.14	3.29	32.86

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Arsenic	16.6	1.76E+00	2.93E-01	0.42	10	1	0.04	0.4
Selenium	32.4	1.19E+01	1.98E+00	2.5	1.4	0.14	1.8	17.9

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Arsenic	53	m	2.91E-01	9.32E-02	0.063	10	1	0.006	0.06
Selenium	73	m	3.32E+00	1.06E+00	0.19	1.4	0.14	0.1	1.4

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Arsenic	16.6	1.76E+00	4.56E-03	1.13E-01	2.93E-01	7.57E-02	3.60E-02	0.0000069	10	1	0.0000007	0.000007
Selenium	32.4	1.19E+01	2.36E+01	2.44E+00	1.98E+00	2.84E+00	7.82E-01	0.00004	1.4	0.14	0.00003	0.0003

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Selenium	40.04	2.65E+00	8.47E-01	0.13	1.4	0.14	0.09	0.93

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Selenium	27.3	1.05E+01	1.96E+01	2.29E+00	1.75E+00	2.35E+00	7.33E-01	0.000036	1.4	0.14	0.00003	0.0003

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Arsenic	53	m	4.56E-03	2.42E-01	0.4	22.4	2.24	0.02	0.2
Selenium	73	m	5.80E+01	6.95E+00	5.4	2.9	0.29	1.86	18.62

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Arsenic	16.6	1.76E+00	4.56E-03	2.93E-01	7.57E-02	0.0002	22.4	2.24	0.000009	0.00009
Selenium	32.4	1.19E+01	2.36E+01	1.98E+00	2.84E+00	0.0034	2.9	0.29	0.001	0.01

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Arsenic	53	m	3.99E+00	6.66E-01	1.6	22.4	2.24	0.07	0.7
Selenium	73	m	2.15E+01	3.60E+00	5.2	2.9	0.29	1.79	17.93

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Arsenic	16.6	1.76E+00	4.56E-03	2.93E-01	7.57E-02	0.12	22.4	2.24	0.005	0.05
Selenium	32.4	1.19E+01	2.36E+01	1.98E+00	2.84E+00	0.6	2.9	0.29	0.2	2.1

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Arsenic	53	m	2.91E-01	9.32E-02	0.082	22.4	2.24	0.004	0.04
Selenium	73	m	3.32E+00	1.06E+00	0.34	2.9	0.29	0.1	1.2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Arsenic	16.6	1.13E-01	3.60E-02	0.000011	22.4	2.24	0.0000005	0.000005
Selenium	32.4	2.44E+00	7.82E-01	0.000093	2.9	0.29	0.00003	0.0003

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.9.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics																			
Arsenic	4	-	6	16.6	3	EcoSSL	veg	0.009	0.09	0.04	0.4	0.0000007	0.000007	0.000009	0.00009	0.005	0.05	0.0000005	0.000005
Selenium	4	-	6	32.4	100	EcoSSL	veg	1.43	**14**	**2**	**18**	0.00003	0.0003	0.001	0.01	0.2	**2**	0.00003	0.0003

Notes:

EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.

ESL = Ecological Screening Critiera.

LOAEL = Lowest observed adverse effect level.

mg/kg = Milligrams per kilogram.

NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.

[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.9.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Inorganics									
Selenium	12	-	24	27.3	80	EcoSSL	veg	0.00003	0.0003

Notes:

EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.

ESL = Ecological Screening Critiera.

LOAEL = Lowest observed adverse effect level.

mg/kg = Milligrams per kilogram.

NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.

[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.10.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds															
Acetone	0	-	3	0	–	-	–		0.0224	-	0.0249		–	0.012	–
Acrolein	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Acrylonitrile	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
Benzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Bis(2-chloroethyl)ether	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Bis(2-chloroisopropyl)ether	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Bromodichloromethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Bromomethane	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
2-Butanone	0	-	3	0	–	-	–		0.0224	-	0.0249		–	0.012	–
Carbon disulfide	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Carbon tetrachloride	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
CFC-11	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
Chlorobenzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Chlorodibromomethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Chloroethane	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
2-Chloroethyl vinyl ether	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
Chloroform	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Chloromethane	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
2-Chlorophenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Dibenzofuran	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Dibromomethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,2-Dichlorobenzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,4-Dichlorobenzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,4 Dichloro-2-butene	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
1,1-Dichloroethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,2-Dichloroethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,1-Dichloroethylene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
cis-1,2-Dichloroethene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
trans-1,2-Dichloroethene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Dichloromethane	0	-	2	0	–	-	–		0.00611	-	0.00623		–	0.00309	–
1,2-Dichloropropane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
cis-1,3-Dichloropropene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
trans-1,3-Dichloropropene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Ethyl methacrylate	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Ethylbenzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Iodomethane	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–

Table E.10.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
m-Dichlorobenzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Methyl n-butyl ketone	0	-	3	0	–	-	–		0.0224	-	0.0249		–	0.012	–
Methylbenzene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
4-Methyl-2-pentanone (MIBK)	0	-	3	0	–	-	–		0.0224	-	0.0249		–	0.012	–
Nitrobenzene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Styrene (monomer)	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Tetrachloroethene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,1,2,2-Tetrachloroethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,1,1-Trichloroethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,1,2-Trichloroethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,2,3-Trichloropropane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
1,2,4-Trichlorobenzene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Trichloroethylene	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Vinyl acetate	0	-	3	0	–	-	–		0.0224	-	0.0249		–	0.012	–
Vinyl chloride	0	-	3	0	–	-	–		0.0112	-	0.0125		–	0.00598	–
Xylenes	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
Semi Volatile Organic Compounds															
Benzidine	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
Benzoic acid	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
Benzyl alcohol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Benzyl butyl phthalate	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Bis(2-chloroethoxy)methane	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Bis(2-ethylhexyl)phthalate	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
4-Bromophenyl phenyl ether	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
p-Chloroaniline	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
4-Chloro-3-methylphenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
4-Chlorophenyl phenyl ether	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
3,3'-Dichlorobenzidine	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2,4-Dichlorophenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Diethyl phthalate	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2,4-Dimethylphenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2,4-Dinitrophenol	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
2,4-Dinitrotoluene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
1,2-Diphenylhydrazine	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
Dimethyl phthalate	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Di-n-butyl phthalate	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Di-n-octyl phthalate	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Diphenylamine	0	-	3	0	–	-	–		1.12	-	1.24		–	0.597	–

Table E.10.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
Hexachloro-1,3-butadiene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Hexachlorobenzene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Hexachlorocyclopentadiene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Hexachloroethane	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2-Methyl-4,6-dinitrophenol	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
2-Methylphenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
4-Methylphenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2-Nitroaniline	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
3-Nitroaniline	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
p-Nitroaniline	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
2-Nitrophenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
4-Nitrophenol	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
n-Nitrosodi-n-propylamine	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
n-Nitrosodiphenylamine	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Pentachlorophenol	0	-	3	0	–	-	–		1.79	-	1.99		–	0.955	–
Phenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Tribromomethane	0	-	3	0	–	-	–		0.00561	-	0.00623		–	0.00299	–
2,4,5-Trichlorophenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2,4,6-Trichlorophenol	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Acenaphthylene	0	-	2	0	–	-	–		0.403	-	0.411		–	0.204	–
Anthracene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Benzo(a)anthracene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Benzo(a)pyrene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Benzo(b)fluoranthene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Benzo(g,h,i)perylene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Benzo(k)fluoranthene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
1,2-Benzphenanthracene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
1-Chloronaphthalene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2-Chloronaphthalene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Dibenz(a,h)anthracene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Fluoranthene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Fluorene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Indeno(1,2,3-cd)pyrene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
2-Methylnaphthalene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–
Naphthalene	0	-	3	0	–	-	–		0.37	-	0.411		–	0.197	–

Table E.10.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Phenanthrene	0	-	3	0	–	-	–	0.37	-	0.411	–	0.197	–
Pyrene	0	-	3	0	–	-	–	0.37	-	0.411	–	0.197	–
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	0	-	3	0	–	-	–	33.6	-	37.3	–	17.9	–
Explosives													
2,6-Dinitrotoluene	0	-	3	0	–	-	–	0.37	-	0.411	–	0.197	–
Inorganics													
Arsenic	2	-	3	66.7	3.51	-	8.56	3.12	-	3.12	HMW-43	4.54	–
Barium	3	-	3	100	47.4	-	97.8	–	-	–	SWMU 148 SB-03	72.7	–
Cadmium	0	-	3	0	–	-	–	1.12	-	6.23	–	1.74	–
Chromium	1	-	9	11.1	6.4	-	6.4	1.19	-	31.2	HMW-43	5.44	–
Chromium (Hexavalent)	0	-	8	0	–	-	–	1.08	-	5.96	–	0.893	–
Lead	2	-	3	66.7	3.65	-	6	2.8	-	2.8	SWMU 148 SB-03	3.68	–
Mercury	2	-	3	66.7	0.0258	-	0.0474	0.0244	-	0.0244	SWMU 148 SB-07	0.0285	–
Selenium	0	-	3	0	–	-	–	2.8	-	3.12	–	1.5	–
Silver	1	-	3	33.3	10.8	-	10.8	15.3	-	31.2	HMW-43	11.4	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.10.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	10	0	–	-	–	0.0224	-	0.1	–	0.0173	–
Acrolein	0	-	10	0	–	-	–	0.00561	-	0.2	–	0.0131	–
Acrylonitrile	0	-	10	0	–	-	–	0.0112	-	0.1	–	0.0112	–
Benzene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Bis(2-chloroethyl)ether	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Bis(2-chloroisopropyl)ether	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Bromodichloromethane	0	-	9	0	–	-	–	0.00561	-	0.0113	–	0.00342	–
Bromomethane	0	-	10	0	–	-	–	0.005	-	0.0226	–	0.00641	–
2-Butanone	0	-	10	0	–	-	–	0.0224	-	0.1	–	0.0173	–
Carbon disulfide	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Carbon tetrachloride	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
CFC-11	0	-	10	0	–	-	–	0.00646	-	0.0226	–	0.00637	–
CFC-12	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Chlorodibromomethane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Chloroethane	0	-	10	0	–	-	–	0.01	-	0.0226	–	0.00666	–
2-Chloroethyl vinyl ether	0	-	10	0	–	-	–	0.01	-	0.0226	–	0.00666	–
Chloroform	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Chloromethane	0	-	10	0	–	-	–	0.01	-	0.0226	–	0.00666	–
2-Chlorophenol	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Dibenzofuran	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
Dibromomethane	0	-	10	0	–	-	–	0.00561	-	0.02	–	0.00407	–
1,2-Dichlorobenzene	0	-	10	0	–	-	–	0.00561	-	0.3	–	0.0181	–
1,4-Dichlorobenzene	0	-	10	0	–	-	–	0.00561	-	0.3	–	0.0181	–
1,4 Dichloro-2-butene	0	-	10	0	–	-	–	0.0112	-	0.0226	–	0.00716	–
1,1-Dichloroethane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
1,2-Dichloroethane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
1,1-Dichloroethylene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
cis-1,2-Dichloroethene	0	-	9	0	–	-	–	0.00561	-	0.0113	–	0.00342	–
trans-1,2-Dichloroethene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Dichloromethane	0	-	7	0	–	-	–	0.005	-	0.00693	–	0.00308	–
1,2-Dichloropropane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
cis-1,3-Dichloropropene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
trans-1,3-Dichloropropene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Ethanol	0	-	1	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	10	0	–	-	–	0.00561	-	0.02	–	0.00407	–

Table E.10.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethylbenzene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Iodomethane	0	-	10	0	–	-	–	0.0112	-	0.0226	–	0.00716	–
m-Dichlorobenzene	0	-	10	0	–	-	–	0.00561	-	0.3	–	0.0181	–
Methyl n-butyl ketone	0	-	10	0	–	-	–	0.0224	-	0.05	–	0.0148	–
Methylbenzene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
4-Methyl-2-pentanone (MIBK)	0	-	10	0	–	-	–	0.0224	-	0.05	–	0.0148	–
Nitrobenzene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Styrene (monomer)	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Tetrachloroethene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
1,1,2,2-Tetrachloroethane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
1,1,1-Trichloroethane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
1,1,2-Trichloroethane	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
1,2,3-Trichloropropane	0	-	10	0	–	-	–	0.00561	-	0.02	–	0.00407	–
1,2,4-Trichlorobenzene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Trichloroethylene	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Vinyl acetate	0	-	10	0	–	-	–	0.01	-	0.0452	–	0.0128	–
Vinyl chloride	0	-	10	0	–	-	–	0.01	-	0.0226	–	0.00666	–
Xylenes	0	-	10	0	–	-	–	0.005	-	0.0113	–	0.00332	–
Semi Volatile Organic Compounds													
Benzidine	0	-	10	0	–	-	–	1.7	-	2.22	–	0.977	–
Benzoic acid	0	-	10	0	–	-	–	1.79	-	2.22	–	0.992	–
Benzyl alcohol	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
Benzyl butyl phthalate	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Bis(2-chloroethoxy)methane	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Bis(2-ethylhexyl)phthalate	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
4-Bromophenyl phenyl ether	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
p-Chloroaniline	0	-	9	0	–	-	–	0.00646	-	0.458	–	0.183	–
4-Chloro-3-methylphenol	0	-	10	0	–	-	–	0.37	-	0.7	–	0.219	–
4-Chlorophenyl phenyl ether	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
3,3'-Dichlorobenzidine	0	-	10	0	–	-	–	0.37	-	0.7	–	0.219	–
2,4-Dichlorophenol	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Diethyl phthalate	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
2,4-Dimethylphenol	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
2,4-Dinitrophenol	0	-	10	0	–	-	–	1.79	-	2.22	–	0.992	–
2,4-Dinitrotoluene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
1,2-Diphenylhydrazine	0	-	9	0	–	-	–	1.79	-	2.22	–	0.991	–
Dimethyl phthalate	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Di-n-butyl phthalate	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–

Table E.10.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Di-n-octyl phthalate	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Diphenylamine	0	-	9	0	–	-	–	1.12	-	1.39	–	0.618	–
Hexachloro-1,3-butadiene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Hexachlorobenzene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Hexachlorocyclopentadiene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Hexachloroethane	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	10	0	–	-	–	1.79	-	2.22	–	0.992	–
2-Methylphenol	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
4-Methylphenol	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
2-Nitroaniline	0	-	9	0	–	-	–	1.79	-	2.22	–	0.991	–
3-Nitroaniline	0	-	9	0	–	-	–	1.79	-	2.22	–	0.991	–
p-Nitroaniline	0	-	9	0	–	-	–	1.79	-	2.22	–	0.991	–
2-Nitrophenol	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
4-Nitrophenol	0	-	10	0	–	-	–	1.79	-	2.22	–	0.992	–
n-Nitrosodi-n-propylamine	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
n-Nitrosodiphenylamine	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Pentachlorophenol	0	-	10	0	–	-	–	1.79	-	2.22	–	0.992	–
Phenol	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Tribromomethane	0	-	9	0	–	-	–	0.00561	-	0.0113	–	0.00342	–
2,4,5-Trichlorophenol	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
2,4,6-Trichlorophenol	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Acenaphthylene	0	-	7	0	–	-	–	0.3	-	0.458	–	0.201	–
Anthracene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Benzo(a)anthracene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Benzo(a)pyrene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Benzo(b)fluoranthene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Benzo(g,h,i)perylene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Benzo(k)fluoranthene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
1,2-Benzphenanthracene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
1-Chloronaphthalene	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
2-Chloronaphthalene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Dibenz(a,h)anthracene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Fluoranthene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Fluorene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–

Table E.10.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Indeno(1,2,3-cd)pyrene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
2-Methylnaphthalene	0	-	9	0	–	-	–	0.37	-	0.458	–	0.205	–
Naphthalene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Phenanthrene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Pyrene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	10	0	–	-	–	13	-	41.6	–	17.4	–
Explosives													
2,6-Dinitrotoluene	0	-	10	0	–	-	–	0.3	-	0.458	–	0.199	–
Inorganics													
Arsenic	9	-	14	64.3	0.59	-	9.64	0.49	-	3.47	HMW-43(3)	2.96	4.416
Barium	9	-	14	64.3	47.4	-	179	92	-	96	HMW-43(3)	74.9	98.1
Cadmium	0	-	14	0	–	-	–	1.12	-	6.93	–	1.8	–
Chromium	2	-	27	7.41	6.4	-	19.3	1.19	-	34.7	HMW-43(3)	6.9	–
Chromium (Hexavalent)	4	-	29	13.8	0.027	-	14	1.08	-	6.41	143B3(10)	1.42	–
Lead	5	-	14	35.7	3.65	-	14.7	1.28	-	24	HMW-43(3)	7.1	7.785
Mercury	3	-	14	21.4	0.0258	-	0.0474	0.0227	-	0.1	SWMU 148 SB-07(1)	0.0301	–
Selenium	0	-	14	0	–	-	–	0.44	-	3.47	–	1.15	–
Silver	5	-	14	35.7	8.84	-	74.8	4.6	-	34.7	SWMU 148 SB-03(8)	15.3	25.75

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.10.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	1	-	25	4	0.176	-	0.176	0.0224	-	0.1	HMW-36(11/4/1993)	0.0375	–	Y
Acetophenone	0	-	9	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
Acrolein	0	-	16	0	–	-	–	0.00561	-	0.2	–	0.0215	–	Y
Acrylonitrile	0	-	25	0	–	-	–	0.01	-	0.1	–	0.0113	–	Y
Benzene	0	-	25	0	–	-	–	0.005	-	0.0113	–	0.00383	–	Y
Bis(2-chloroethyl)ether	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	Y
Bis(2-chloroisopropyl)ether	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	Y
Bromobenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromodichloromethane	0	-	22	0	–	-	–	0.00561	-	0.0113	–	0.00401	–	Y
Bromomethane	0	-	25	0	–	-	–	0.005	-	0.05	–	0.0128	–	Y
2-Butanone	0	-	25	0	–	-	–	0.0224	-	0.1	–	0.0219	–	Y
tert-Butyl alcohol	0	-	9	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
n-Butylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
sec-Butylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
tert-Butylbenzene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon disulfide	0	-	25	0	–	-	–	0.005	-	0.0113	–	0.00383	–	Y
Carbon tetrachloride	0	-	25	0	–	-	–	0.005	-	0.0113	–	0.00383	–	Y
CFC-11	0	-	25	0	–	-	–	0.00646	-	0.0226	–	0.00575	–	Y
CFC-12	0	-	12	0	–	-	–	0.01	-	0.02	–	0.00625	–	Y
Chlorobenzene	0	-	25	0	–	-	–	0.005	-	0.0113	–	0.00383	–	Y
Chlorobromomethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorodibromomethane	0	-	25	0	–	-	–	0.005	-	0.0113	–	0.00383	–	N
Chloroethane	0	-	25	0	–	-	–	0.01	-	0.0226	–	0.00586	–	Y
2-Chloroethyl vinyl ether	0	-	25	0	–	-	–	0.01	-	0.05	–	0.0131	–	Y
Chloroform	0	-	25	0	–	-	–	0.005	-	0.0113	–	0.00383	–	Y
Chloromethane	0	-	25	0	–	-	–	0.01	-	0.0226	–	0.00586	–	Y
2-Chlorophenol	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	Y
2-Chlorotoluene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
4-Chlorotoluene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Cymene	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibenzofuran	0	-	22	0	–	-	–	0.25	-	0.458	–	0.172	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	9	0	–	-	–	0.05	-	0.05	–	0.025	–	N
1,2-Dibromoethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibromomethane	0	-	25	0	–	-	–	0.00561	-	0.02	–	0.00473	–	Y
1,2-Dichlorobenzene	0	-	25	0	–	-	–	0.00561	-	0.3	–	0.0215	–	Y
1,4-Dichlorobenzene	0	-	25	0	–	-	–	0.00561	-	0.3	–	0.0215	–	Y

Table E.10.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)					
1,4 Dichloro-2-butene	0	-	16	0	–	-	–		0.0112	-	0.0226		–	0.00729	–	Y
trans-1,4-Dichlorobutene	0	-	9	0	–	-	–		0.1	-	0.1		–	0.05	–	Y
1,1-Dichloroethane	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,2-Dichloroethane	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,1-Dichloroethylene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
cis-1,2-Dichloroethene	0	-	22	0	–	-	–		0.00561	-	0.0113		–	0.00401	–	Y
trans-1,2-Dichloroethene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
Dichloromethane	0	-	18	0	–	-	–		0.005	-	0.05		–	0.014	–	Y
1,2-Dichloropropane	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,3-Dichloropropane	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
2,2-Dichloropropane	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
1,1-Dichloropropene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
cis-1,3-Dichloropropene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
trans-1,3-Dichloropropene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
Ethanol	0	-	3	0	–	-	–		1	-	1		–	0.5	–	N
Ethyl methacrylate	0	-	16	0	–	-	–		0.00561	-	0.02		–	0.00458	–	Y
Ethylbenzene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
Iodomethane	0	-	25	0	–	-	–		0.0112	-	0.05		–	0.0137	–	Y
Isopropyl alcohol	0	-	9	0	–	-	–		0.2	-	0.2		–	0.1	–	N
Isopropylbenzene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
m-Dichlorobenzene	0	-	25	0	–	-	–		0.00561	-	0.3		–	0.0215	–	Y
Methyl n-butyl ketone	0	-	25	0	–	-	–		0.0224	-	0.05		–	0.0189	–	Y
Methylbenzene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	25	0	–	-	–		0.0224	-	0.05		–	0.0189	–	Y
Methyl tert-butyl ether (MTBE)	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
Nitrobenzene	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	Y
n-Propylbenzene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
Styrene (monomer)	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
Tetrachloroethene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,1,1,2-Tetrachloroethane	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
1,1,2,2-Tetrachloroethane	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,1,1-Trichloroethane	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,1,2-Trichloroethane	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
1,2,3-Trichlorobenzene	0	-	9	0	–	-	–		0.05	-	0.05		–	0.025	–	Y
1,2,3-Trichloropropane	0	-	25	0	–	-	–		0.00561	-	0.02		–	0.00473	–	Y
1,2,4-Trichlorobenzene	0	-	25	0	–	-	–		0.05	-	0.458		–	0.134	–	Y
1,2,4-Trimethylbenzene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
1,3,5-Trimethylbenzene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y

Table E.10.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)					
Trichloroethylene	0	-	25	0	–	-	–		0.005	-	0.0113		–	0.00383	–	Y
Vinyl acetate	0	-	16	0	–	-	–		0.01	-	0.0452		–	0.0118	–	Y
Vinyl chloride	0	-	25	0	–	-	–		0.01	-	0.0226		–	0.00586	–	Y
m,p-Xylene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
o-Xylene	0	-	9	0	–	-	–		0.01	-	0.01		–	0.005	–	Y
Xylenes	0	-	16	0	–	-	–		0.005	-	0.0113		–	0.00317	–	Y
Semi Volatile Organic Compounds																
4-Aminobiphenyl	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Aniline	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Benzidine	0	-	25	0	–	-	–		0.25	-	2.22		–	0.664	–	N
Benzoic acid	0	-	25	0	–	-	–		0.25	-	2.22		–	0.682	–	N
Benzyl alcohol	0	-	22	0	–	-	–		0.25	-	0.458		–	0.172	–	N
Benzyl butyl phthalate	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Bis(2-chloroethoxy)methane	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Bis(2-ethylhexyl)phthalate	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
4-Bromophenyl phenyl ether	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
2-Butoxy ethanol	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
p-Chloroaniline	0	-	22	0	–	-	–		0.00646	-	0.458		–	0.163	–	N
4-Chloro-3-methylphenol	0	-	25	0	–	-	–		0.25	-	0.7		–	0.194	–	N
Chlorophenols	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
4-Chlorophenyl phenyl ether	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
m,p-Cresol	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Dibenz[a,,j]acridine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
3,3'-Dichlorobenzidine	0	-	25	0	–	-	–		0.25	-	0.7		–	0.194	–	N
2,4-Dichlorophenol	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
2,6-Dichlorophenol	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Diethyl phthalate	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
4-Dimethylaminoazobenzene	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
2,4-Dimethylphenol	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
2,4-Dinitrophenol	0	-	25	0	–	-	–		0.25	-	2.22		–	0.682	–	N
2,4-Dinitrotoluene	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
1,2-Diphenylhydrazine	0	-	13	0	–	-	–		1.79	-	2.22		–	0.994	–	N
a,a-Dimethylphenethylamine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Dimethyl phthalate	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Di-n-butyl phthalate	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Di-n-octyl phthalate	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
1,4-Dioxane	0	-	9	0	–	-	–		0.5	-	0.5		–	0.25	–	N
Diphenylamine	0	-	22	0	–	-	–		0.25	-	1.39		–	0.418	–	N

Table E.10.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)					
Diphenylhydrazine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Ethyl methanesulfonate	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Hexachloro-1,3-butadiene	0	-	25	0	–	-	–		0.05	-	0.458		–	0.134	–	N
Hexachlorobenzene	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Hexachlorocyclopentadiene	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Hexachloroethane	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Methanamine, n-methyl-n-nitroso	0	-	12	0	–	-	–		0.25	-	0.33		–	0.135	–	N
2-Methyl-4,6-dinitrophenol	0	-	25	0	–	-	–		0.25	-	2.22		–	0.682	–	N
Methyl methanesulfonate	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
2-Methylphenol	0	-	22	0	–	-	–		0.25	-	0.458		–	0.172	–	N
4-Methylphenol	0	-	13	0	–	-	–		0.37	-	0.458		–	0.205	–	N
2-Methyl pyridine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
1-Naphthylamine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
2-Naphthylamine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
2-Nitroaniline	0	-	22	0	–	-	–		0.25	-	2.22		–	0.639	–	N
3-Nitroaniline	0	-	22	0	–	-	–		0.25	-	2.22		–	0.639	–	N
p-Nitroaniline	0	-	22	0	–	-	–		0.25	-	2.22		–	0.639	–	N
2-Nitrophenol	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
4-Nitrophenol	0	-	25	0	–	-	–		0.25	-	2.22		–	0.682	–	N
n-Nitrosodi-n-butylamine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	Y
n-Nitrosodi-n-propylamine	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
n-Nitrosodiphenylamine	0	-	16	0	–	-	–		0.3	-	0.458		–	0.195	–	N
n-Nitrosopiperidine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Pentachlorobenzene	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Pentachlorophenol	0	-	25	0	–	-	–		0.25	-	2.22		–	0.682	–	N
Phenacetin	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Phenol	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Propyzamide	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Pyridine	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
1,2,4,5-Tetrachlorobenzene	0	-	9	0	–	-	–		0.25	-	0.25		–	0.125	–	N
Tribromomethane	0	-	22	0	–	-	–		0.00561	-	0.0113		–	0.00401	–	N
2,4,5-Trichlorophenol	0	-	22	0	–	-	–		0.25	-	0.458		–	0.172	–	N
2,4,6-Trichlorophenol	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	N
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	Y
Acenaphthylene	0	-	18	0	–	-	–		0.25	-	0.458		–	0.157	–	Y
Anthracene	0	-	25	0	–	-	–		0.25	-	0.458		–	0.17	–	Y

Table E.10.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Benzo(a)anthracene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Benzo(a)pyrene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Benzo(b)fluoranthene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Benzo(g,h,i)perylene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Benzo(k)fluoranthene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
1,2-Benzphenanthracene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
1-Chloronaphthalene	0	-	22	0	–	-	–	0.25	-	0.458	–	0.172	–	Y
2-Chloronaphthalene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	Y
Dibenz(a,h)anthracene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
7,12-Dimethylbenz(a)anthracene	0	-	9	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Fluoranthene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Fluorene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	Y
Indeno(1,2,3-cd)pyrene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
3-Methylchloranthrene	0	-	9	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1-Methylnaphthalene	0	-	9	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
2-Methylnaphthalene	1	-	22	4.55	1.37	-	1.37	0.25	-	0.458	HMW-36(11/4/1993)	0.225	–	Y
Naphthalene	0	-	25	0	–	-	–	0.05	-	0.458	–	0.134	–	Y
Phenanthrene	1	-	25	4	0.496	-	0.496	0.25	-	0.458	HMW-36(11/4/1993)	0.181	–	Y
Pyrene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Pesticides														
Pentachloronitrobenzene	0	-	9	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	9	0	–	-	–	50	-	50	–	25	–	N
Gasoline Range Organics (GRO)	0	-	9	0	–	-	–	1	-	1	–	0.5	–	N
Petroleum hydrocarbons	0	-	3	0	–	-	–	11	-	13	–	6.17	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	16	0	–	-	–	11	-	41.6	–	16.3	–	N
Explosives														
2,6-Dinitrotoluene	0	-	25	0	–	-	–	0.25	-	0.458	–	0.17	–	N
Inorganics														
Arsenic	16	-	31	51.6	0.59	-	11.6	0.44	-	3.47	HMW-43(11/17/1993)	2.9	3.851	N
Barium	23	-	31	74.2	16.2	-	472	40	-	96	HLSF-SB-026(11/6/2006)	82.3	110.2	N
Cadmium	0	-	31	0	–	-	–	0.1	-	6.93	–	1.02	–	N
Chromium	12	-	40	30	1.2	-	19.3	1.19	-	34.7	HMW-43(11/17/1993)	7.09	6.445	N
Chromium (Hexavalent)	6	-	40	15	0.027	-	14	1.08	-	6.41	143B3(5/4/1992)	1.61	1.736	N
Copper	9	-	9	100	1.16	-	12.7	–	-	–	HLSF-SB-023(11/7/2006)	5.47	8.194	N
Lead	16	-	31	51.6	1.53	-	34.2	1	-	24	HLSF-SB-023(11/7/2006)	9.29	10.88	N
Mercury	3	-	31	9.68	0.0258	-	0.0474	0.0227	-	0.1	SWMU 148 SB-07(11/29/1993)	0.0275	–	N
Nitrate + Nitrite	9	-	9	100	0.641	-	21.9	–	-	–	HLSF-SB-023(11/7/2006)	4.6	10.59	N

Table E.10.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Phosphorus	9	-	9	100	34.9	-	300	–	-	–	HLSF-SB-023(11/7/2006)	127	188	N
Selenium	0	-	31	0	–	-	–	0.44	-	3.47	–	0.9	–	N
Silver	8	-	31	25.8	7.78	-	74.8	0.05	-	34.7	SWMU 148 SB-03(11/29/1993)	8.32	15.82	N
Sodium	9	-	9	100	274	-	1290	–	-	–	HLSF-SB-023(11/7/2006),HLSF-SB-024(11/6/2006)	832	1043	N
Zinc	9	-	9	100	3.73	-	45.1	–	-	–	HLSF-SB-023(11/7/2006)	18.9	28.94	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.10.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	70	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Acrylonitrile	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bis(2-chloroethyl)ether	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Bis(2-chloroisopropyl)ether	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Bromobenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	70	0	–	-	–	0.001	-	0.005	–	0.00184	–	Y
2-Butanone	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
sec-Butylbenzene	4	-	70	5.71	0.00106	-	0.00227	0.001	-	0.001	HMW-36(2/21/2006)	0.000569	–	Y
tert-Butylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-12	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	13	-	70	18.6	0.00101	-	0.00219	0.001	-	0.001	HMW-11(2/22/2006)	0.000705	0.00101	Y
Chloromethane	4	-	70	5.71	0.0017	-	0.00334	0.001	-	0.001	HMW-39(2/15/2006)	0.000616	–	Y
2-Chlorophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
2-Chlorotoluene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibenzofuran	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	70	0	–	-	–	0.002	-	0.005	–	0.00201	–	N
1,2-Dibromoethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	70	0	–	-	–	0.001	-	5	–	0.0721	–	Y
1,4-Dichlorobenzene	0	-	70	0	–	-	–	0.001	-	5	–	0.0721	–	Y
trans-1,4-Dichlorobutene	0	-	70	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	15	-	70	21.4	0.00109	-	0.0046	0.001	-	0.001	HMW-36(7/29/2004)	0.000835	0.00124	Y

Table E.10.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloroethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	13	-	70	18.6	0.00129	-	0.00515	0.001	-	0.001	HMW-41(4/5/2005)	0.000907	0.0012	Y
cis-1,2-Dichloroethene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	1	-	11	9.09	0.0419	-	0.0419	0.005	-	0.005	HMW-41(12/14/2006)	0.00608	–	N
Isopropylbenzene	3	-	70	4.29	0.00117	-	0.00168	0.001	-	0.001	HMW-36(2/21/2006)	0.000539	–	Y
m-Dichlorobenzene	0	-	70	0	–	-	–	0.001	-	5	–	0.0721	–	Y
Methyl n-butyl ketone	0	-	70	0	–	-	–	0.001	-	0.005	–	0.00184	–	Y
Methylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	70	0	–	-	–	0.0005	-	5	–	0.394	–	Y
n-Propylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	33	-	70	47.1	0.001	-	0.208	0.001	-	0.001	HMW-41(8/22/2006)	0.0292	0.0381	Y
Vinyl chloride	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	70	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N

Table E.10.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Aniline	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Benzidine	0	-	70	0	–	-	–	0.01	-	15	–	1.72	–	N
Benzoic acid	1	-	70	1.43	0.168	-	0.168	0.005	-	20	HMW-41(2/20/2004)	2.15	–	N
Benzyl alcohol	3	-	70	4.29	0.00909	-	1	0.005	-	5	HMW-41(2/20/2004)	0.481	–	N
Benzyl butyl phthalate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Bis(2-chloroethoxy)methane	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Bis(2-ethylhexyl)phthalate	0	-	70	0	–	-	–	0.005	-	10	–	1.15	–	N
4-Bromophenyl phenyl ether	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2-Butoxy ethanol	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
p-Chloroaniline	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
4-Chloro-3-methylphenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Chlorophenols	0	-	70	0	–	-	–	0.005	-	5	–	0.575	–	N
4-Chlorophenyl phenyl ether	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
m,p-Cresol	0	-	54	0	–	-	–	0.005	-	5	–	0.373	–	N
Dibenz[a,,j]acridine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
3,3'-Dichlorobenzidine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2,4-Dichlorophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2,6-Dichlorophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.575	–	N
Diethyl phthalate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
4-Dimethylaminoazobenzene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2,4-Dimethylphenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2,4-Dinitrophenol	0	-	70	0	–	-	–	0.005	-	20	–	2.29	–	N
2,4-Dinitrotoluene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
a,a-Dimethylphenethylamine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Dimethyl phthalate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Di-n-butyl phthalate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
m-Dinitrobenzene	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Di-n-octyl phthalate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1,4-Dioxane	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Diphenylamine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Diphenylhydrazine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Ethyl methanesulfonate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Hexachloro-1,3-butadiene	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorobenzene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Hexachlorocyclopentadiene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Hexachloroethane	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Methanamine, n-methyl-n-nitroso	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2-Methyl-4,6-dinitrophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Methyl methanesulfonate	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N

Table E.10.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
2-Methylphenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
3-Methylphenol	0	-	16	0	–	-	–	0.005	-	5	–	1.25	–	N
4-Methylphenol	0	-	16	0	–	-	–	0.005	-	5	–	1.25	–	N
2-Methyl pyridine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1-Naphthylamine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2-Naphthylamine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2-Nitroaniline	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
3-Nitroaniline	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
p-Nitroaniline	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2-Nitrophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
4-Nitrophenol	0	-	70	0	–	-	–	0.025	-	5	–	0.581	–	N
n-Nitrosodi-n-butylamine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
n-Nitrosodi-n-propylamine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
n-Nitrosopiperidine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Pentachlorobenzene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Pentachlorophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.575	–	N
Phenacetin	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Phenol	1	-	70	1.43	0.00571	-	0.00571	0.005	-	5	HMW-41(2/20/2004)	0.538	–	N
Propyzamide	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Pyridine	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1,2,4,5-Tetrachlorobenzene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Tribromomethane	1	-	70	1.43	0.00236	-	0.00236	0.001	-	0.001	HMW-36(8/23/2006)	0.000527	–	N
2,4,5-Trichlorophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2,4,6-Trichlorophenol	0	-	70	0	–	-	–	0.005	-	5	–	0.575	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1,3,5-Trinitrobenzene	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Acenaphthylene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Anthracene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Benzo(a)anthracene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Benzo(a)pyrene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Benzo(b)fluoranthene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Benzo(g,h,i)perylene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Benzo(k)fluoranthene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1,2-Benzphenanthracene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1-Chloronaphthalene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
2-Chloronaphthalene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Dibenz(a,h)anthracene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N

Table E.10.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
7,12-Dimethylbenz(a)anthracene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Fluoranthene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Fluorene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Indeno(1,2,3-cd)pyrene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
3-Methylchloranthrene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
1-Methylnaphthalene	3	-	70	4.29	0.0053	-	0.037	0.005	-	5	HMW-38(9/11/2007)	0.574	–	Y
2-Methylnaphthalene	1	-	70	1.43	0.0708	-	0.0708	0.005	-	5	HMW-38(9/11/2007)	0.574	–	Y
Naphthalene	0	-	70	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Phenanthrene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	Y
Pyrene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Pesticides														
Pentachloronitrobenzene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	70	0	–	-	–	5	-	50	–	15	–	N
Gasoline Range Organics (GRO)	8	-	70	11.4	0.102	-	0.281	0.1	-	0.1	HMW-41(2/20/2004)	0.0653	0.117	N
Explosives														
2-Amino-4,6-dinitrotoluene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-2,6-dinitrotoluene	0	-	8	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-dnt / 2-Amino-dnt	0	-	49	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	70	0	–	-	–	0.005	-	5	–	0.573	–	N
2,6-DNT / 2,4-DNT	6	-	49	12.2	0.00063	-	0.000939	0.0005	-	0.0005	HMW-43(8/11/2005)	0.000314	0.00066408	N
2-Nitrotoluene	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	0.00072459	N
3-Nitrotoluene	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocin	1	-	57	1.75	0.627	-	0.627	0.0005	-	0.0005	HMW-36(7/29/2004)	0.0112	–	N
Perchlorate	2	-	16	12.5	0.0034	-	0.0044	0.005	-	0.01	HMW-40(2/15/2006)	0.00393	–	N
RDX	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	57	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Aluminum	19	-	47	40.4	0.051	-	3.9	0.03	-	0.1	HMW-11(2/18/2004)	0.328	0.514	N
Ammonia	1	-	58	1.72	1.29	-	1.29	1	-	1	HMW-36(4/6/2005)	0.514	–	N
Antimony	0	-	12	0	–	-	–	0.02	-	0.05	–	0.02	–	N
Arsenic	1	-	61	1.64	0.0076	-	0.0076	0.005	-	0.01	HMW-53(4/7/2008)	0.00385	–	N
Barium	37	-	61	60.7	0.01	-	0.042	0.005	-	0.1	HMW-11(8/30/2006)	0.0219	0.0168	N
Beryllium	14	-	59	23.7	0.003	-	0.012	0.002	-	0.0025	HMW-39(2/20/2004)	0.00263	0.00435	N
Boron	47	-	47	100	0.517	-	12.6	–	-	–	HMW-36(4/6/2005)	4.86	5.428	N
Cadmium	11	-	70	15.7	0.002	-	0.053	0.001	-	0.005	HMW-39(8/28/2006)	0.00318	0.00782	N
Calcium metal	15	-	15	100	287	-	569	–	-	–	HMW-43(8/29/2006)	468	468.1	N

Table E.10.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Chromium	38	-	70	54.3	0.005	-	1.37	0.005	-	0.01	HMW-41(2/20/2004)	0.151	0.85	N
Chromium (Hexavalent)	18	-	32	56.3	0.023	-	1.61	0.01	-	0.01	HMW-41(2/20/2004)	0.248	0.507	N
Cobalt	6	-	59	10.2	0.006	-	0.07	0.002	-	0.02	HMW-38(8/10/2005)	0.00632	0.00905	N
Copper	33	-	70	47.1	0.005	-	2	0.005	-	0.0125	HMW-38(8/10/2005)	0.0764	0.211	N
Cyanide (Total)	1	-	31	3.23	0.13	-	0.13	0.01	-	0.01	HMW-37(2/21/2006)	0.00903	–	N
Fluoride	60	-	70	85.7	0.281	-	49.4	0.2	-	0.2	HMW-53(8/28/2008)	4.17	5.821	N
Iron	38	-	47	80.9	0.014	-	25.7	0.01	-	0.05	HMW-36(2/21/2006)	0.998	4.031	N
Lead	1	-	70	1.43	0.098	-	0.098	0.005	-	0.01	HMW-39(8/28/2006)	0.00472	–	N
Lithium	15	-	15	100	0.144	-	1.1	–	-	–	HMW-36(2/21/2006)	0.555	0.708	N
Magnesium	15	-	15	100	379	-	1470	–	-	–	HMW-40(2/15/2006)	679	740.4	N
Manganese	7	-	47	14.9	0.026	-	0.616	0.005	-	0.025	HMW-36(7/29/2004)	0.0511	0.0777	N
Mercury	1	-	61	1.64	0.00022	-	0.00022	0.0002	-	0.0002	HMW-41(9/11/2007)	0.000102	–	N
Molybdenum	44	-	47	93.6	0.103	-	1.35	0.05	-	0.05	HMW-40(2/20/2004)	0.426	0.501	N
Nickel	10	-	59	16.9	0.006	-	4.88	0.005	-	0.025	HMW-38(8/10/2005)	0.0952	0.425	N
Nitrate	56	-	56	100	1.67	-	301	–	-	–	HMW-53(12/7/2006)	62.7	108.9	N
Nitrate + Nitrite	12	-	14	85.7	9.98	-	686	0.1	-	0.1	HMW-53(8/28/2008)	162	311.5	N
Phosphorus	18	-	50	36	0.056	-	0.592	0.05	-	0.05	HMW-36(2/21/2006)	0.0709	0.0852	N
Potassium	15	-	15	100	59	-	250	–	-	–	HMW-40(2/15/2006)	114	115.7	N
Selenium	29	-	61	47.5	0.026	-	0.539	0.01	-	0.05	HMW-40(2/20/2004)	0.0885	0.11	N
Silver	0	-	70	0	–	-	–	0.002	-	0.0125	–	0.00227	–	N
Sodium	26	-	26	100	463	-	13500	–	-	–	DRW-10(12/12/2006)	3580	4330	N
Strontium	47	-	47	100	1.71	-	36.4	–	-	–	HMW-36(4/6/2005)	10.3	11.86	N
Sulfate	70	-	70	100	3160	-	33300	–	-	–	HMW-53(8/28/2008)	8290	9174	N
Thallium	0	-	12	0	–	-	–	0.02	-	0.05	–	0.0225	–	N
Tin	7	-	59	11.9	0.025	-	0.204	0.025	-	0.1	HMW-39	0.0226	0.0396	N
Vanadium	45	-	59	76.3	0.005	-	0.12	0.005	-	0.025	HMW-36(2/21/2006)	0.0281	0.0326	N
Zinc	21	-	70	30	0.005	-	0.56	0.005	-	0.025	HMW-39	0.0165	0.0303	N
Other														
Bromide	39	-	66	59.1	0.51	-	8.22	0.2	-	1	DRW-10(9/20/2007)	1.39	1.776	N
Chloride	70	-	70	100	94	-	20200	–	-	–	HMW-53(8/28/2008)	3090	4229	N

Notes:
– = Not analyzed/ not applicable.
mg/L = Milligrams per liter.
[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.
[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.10-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Volatile Organic Compounds																	
Acetone	0 / 3	0	–	0.0249	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0 / 3	0	–	0.0062	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0 / 3	0	–	0.0125	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0 / 3	0	–	0.0062	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0 / 3	0	–	0.411	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0 / 3	0	–	0.411	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromodichloromethane	0 / 3	0	–	0.0062	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0 / 3	0	–	0.0125	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0 / 3	0	–	0.0249	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0 / 3	0	–	0.0062	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0 / 3	0	–	0.0062	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0 / 3	0	–	0.0125	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0 / 3	0	–	0.0062	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0 / 3	0	–	0.0062	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0 / 3	0	–	0.0125	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0 / 3	0	–	0.0125	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0 / 3	0	–	0.0062	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0 / 3	0	–	0.0125	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0 / 3	0	–	0.411	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibenzofuran	0 / 3	0	–	0.411	–	7.80E+01	n	1.00E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0 / 3	0	–	0.0062	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0 / 3	0	–	0.0062	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0 / 3	0	–	0.0062	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0 / 3	0	–	0.0125	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0 / 3	0	–	0.0062	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0 / 3	0	–	0.0062	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0 / 3	0	–	0.0062	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0 / 3	0	–	0.0062	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0 / 3	0	–	0.0062	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0 / 2	0	–	0.0062	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0 / 3	0	–	0.0062	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0 / 3	0	–	0.0062	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0 / 3	0	–	0.0062	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethyl methacrylate	0 / 3	0	–	0.0062	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0 / 3	0	–	0.0062	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0 / 3	0	–	0.0125	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0 / 3	0	–	0.0062	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0 / 3	0	–	0.0249	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0 / 3	0	–	0.0062	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0 / 3	0	–	0.0249	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0 / 3	0	–	0.411	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0 / 3	0	–	0.0062	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0 / 3	0	–	0.0062	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0 / 3	0	–	0.0062	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0 / 3	0	–	0.0062	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0 / 3	0	–	0.0062	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0 / 3	0	–	0.0062	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0 / 3	0	–	0.411	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0 / 3	0	–	0.0062	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0 / 3	0	–	0.0249	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0 / 3	0	–	0.0125	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0 / 3	0	–	0.0062	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																	
Benzidine	0 / 3	0	–	1.99 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0 / 3	0	–	1.99	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl alcohol	0 / 3	0	–	0.411	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no

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Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Benzyl butyl phthalate	0	/	3	0	–	0.411	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0	/	3	0	–	0.411	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bis(2-ethylhexyl)phthalate	0	/	3	0	–	0.411	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0	/	3	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–	no	no
p-Chloroaniline	0	/	3	0	–	0.411	–	2.40E+01	c	8.60E+01	c	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0	/	3	0	–	0.411	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0	/	3	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0	/	3	0	–	0.411	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0	/	3	0	–	0.411	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
Diethyl phthalate	0	/	3	0	–	0.411	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0	/	3	0	–	0.411	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0	/	3	0	–	1.99	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0	/	3	0	–	0.411	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–	no	no
1,2-Diphenylhydrazine	0	/	3	0	–	1.99	–	6.08E+00	c	2.39E+01	c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0	/	3	0	–	0.411	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0	/	3	0	–	0.411	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0	/	3	0	–	0.411	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–	no	no
Diphenylamine	0	/	3	0	–	1.24	–	1.50E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0	/	3	0	–	0.411	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0	/	3	0	–	0.411	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0	/	3	0	–	0.411	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Hexachloroethane	0	/	3	0	–	0.411	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0	/	3	0	–	1.99	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–	no	no
2-Methylphenol	0	/	3	0	–	0.411	–	3.10E+03	n	3.10E+04	n	–	–	–	–	–	–	no	no
4-Methylphenol	0	/	3	0	–	0.411	–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–	no	no
2-Nitroaniline	0	/	3	0	–	1.99	–	6.10E+02	n	6.00E+03	n	–	–	–	–	–	–	no	no
3-Nitroaniline	0	/	3	0	–	1.99	–	6.10E+02	n	6.81E+03	n	–	–	–	–	–	–	no	no
p-Nitroaniline	0	/	3	0	–	1.99	–	2.40E+02	c	8.60E+02	c	–	–	–	–	–	–	no	no
2-Nitrophenol	0	/	3	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Nitrophenol	0	/	3	0	–	1.99	–	NA	n	NA	n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0	/	3	0	–	0.411	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0	/	3	0	–	0.411	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–	no	no
Pentachlorophenol	0	/	3	0	–	1.99	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–	no	no
Phenol	0	/	3	0	–	0.411	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–	no	no
Tribromomethane	0	/	3	0	–	0.0062	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–	no	no
2,4,5-Trichlorophenol	0	/	3	0	–	0.411	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0	/	3	0	–	0.411	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	3	0	–	0.411	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																			
Acenaphthene	0	/	3	0	–	0.411	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0	/	2	0	–	0.411	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0	/	3	0	–	0.411	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0	/	3	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0	/	3	0	–	0.411	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0	/	3	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0	/	3	0	–	0.411	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0	/	3	0	–	0.411	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0	/	3	0	–	0.411	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–	no	no
1-Chloronaphthalene	0	/	3	0	–	0.411	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0	/	3	0	–	0.411	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0	/	3	0	–	0.411	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Fluoranthene	0	/	3	0	–	0.411	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0	/	3	0	–	0.411	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0	/	3	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
2-Methylnaphthalene	0	/	3	0	–	0.411	–	3.10E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Naphthalene	0	/	3	0	–	0.411	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Phenanthrene	0	/	3	0	–	0.411	–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–	no	no

Table E.10-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Pyrene	0	/	3	0	–	0.411	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)																			
Total Petroleum Hydrocarbons (TPH)	0	/	3	0	–	37.3	–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–	no	no
Explosives																			
2,6-Dinitrotoluene	0	/	3	0	–	0.411	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																			
Arsenic	2	/	3	66.7	8.56	3.12	no	3.90E+00	c	1.77E+01	c	YES	no	2.20E+00	–	4.84E-01	–	yes	no
Barium	3	/	3	100	97.8	–	YES	1.56E+04	n	2.24E+05	n	no	no	–	6.27E-03	–	4.37E-04	no	no
Cadmium	0	/	3	0	–	6.23	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Chromium	1	/	9	11.1	6.4	31.2	no	2.19E+02	n	2.92E+03	n	no	no	–	2.92E-02	–	2.19E-03	yes	no
Chromium (Hexavalent)	0	/	8	0	–	5.96	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	2	/	3	66.7	6	2.8	no	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	2	/	3	66.7	0.0474	0.0244	YES	7.71E+00	n	4.99E+01	n	no	no	–	6.15E-03	–	9.49E-04	no	no
Selenium	0	/	3	0	–	3.12	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	1	/	3	33.3	10.8	31.2	no	3.91E+02	n	5.68E+03	n	no	no	–	2.76E-02	–	1.90E-03	yes	no
Total Maximum / Screening Level Ratios														2	0.07	0.5	0.005		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)														2.E-05	0.07	5.E-06	0.005		

Target Organ Max/SL Ratios		
Kidney and Liver	0.006	0.0004
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.03	0.002
Lungs	0.03	0.002
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	NA	NA
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.006	0.0004
Immune System	NA	NA
Development	NA	NA
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	NA	NA

Notes:

– = Not applicable.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.10-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	0	/	10	0	–	0.1	–	2.63E+05	n	–	–	–	no
Acrolein	0	/	10	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	10	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	10	0	–	0.011	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	10	0	–	0.458	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	10	0	–	0.458	–	3.10E+03	c	–	–	–	no
Bromodichloromethane	0	/	9	0	–	0.011	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/	10	0	–	0.023	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	10	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	10	0	–	0.011	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	10	0	–	0.011	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	10	0	–	0.023	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	1	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	10	0	–	0.011	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	10	0	–	0.011	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	10	0	–	0.023	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	10	0	–	0.023	–	NA	n	–	–	–	no
Chloroform	0	/	10	0	–	0.011	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	10	0	–	0.023	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	10	0	–	0.458	–	1.55E+03	n	–	–	–	no
Dibenzofuran	0	/	9	0	–	0.458	–	9.53E+02	n	–	–	–	no
Dibromomethane	0	/	10	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	10	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	10	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	10	0	–	0.023	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	10	0	–	0.011	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	10	0	–	0.011	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	10	0	–	0.011	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	9	0	–	0.011	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/	10	0	–	0.011	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	7	0	–	0.007	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	10	0	–	0.011	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	10	0	–	0.011	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	10	0	–	0.011	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	1	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	10	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	10	0	–	0.011	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	10	0	–	0.023	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	10	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	10	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	10	0	–	0.011	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	10	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	10	0	–	0.458	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	10	0	–	0.011	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	10	0	–	0.011	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	10	0	–	0.011	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	10	0	–	0.011	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	10	0	–	0.011	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	10	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	10	0	–	0.458	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	10	0	–	0.011	–	4.60E+03	c	–	–	–	no

Table E.10-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Vinyl acetate	0	/	10	0	–	0.045	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	10	0	–	0.023	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	10	0	–	0.011	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds													
Benzidine	0	/	10	0	–	2.22 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/	10	0	–	2.22	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/	9	0	–	0.458	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0	/	10	0	–	0.458	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	10	0	–	0.458	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/	10	0	–	0.458	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	/	10	0	–	0.458	–	NA	n	–	–	–	no
p-Chloroaniline	0	/	9	0	–	0.458	–	8.34E+02	c	–	–	–	no
4-Chloro-3-methylphenol	0	/	10	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	10	0	–	0.458	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	10	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	10	0	–	0.458	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	10	0	–	0.458	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	10	0	–	0.458	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	10	0	–	2.22	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	10	0	–	0.458	–	4.76E+02	n	–	–	–	no
1,2-Diphenylhydrazine	0	/	9	0	–	2.22	–	2.07E+02	c	–	–	–	no
Dimethyl phthalate	0	/	10	0	–	0.458	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/	10	0	–	0.458	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/	10	0	–	0.458	–	9.53E+03	n	–	–	–	no
Diphenylamine	0	/	9	0	–	1.39	–	5.96E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	10	0	–	0.458	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	10	0	–	0.458	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	10	0	–	0.458	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	10	0	–	0.458	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	10	0	–	2.22	–	2.38E+01	n	–	–	–	no
2-Methylphenol	0	/	9	0	–	0.458	–	1.19E+04	n	–	–	–	no
4-Methylphenol	0	/	9	0	–	0.458	–	1.19E+03	n	–	–	–	no
2-Nitroaniline	0	/	9	0	–	2.22	–	3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/	9	0	–	2.22	–	3.88E+02	n	–	–	–	no
p-Nitroaniline	0	/	9	0	–	2.22	–	9.37E+02	n	–	–	–	no
2-Nitrophenol	0	/	10	0	–	0.458	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	10	0	–	2.22	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	10	0	–	0.458	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	10	0	–	0.458	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	10	0	–	2.22	–	1.03E+03	c	–	–	–	no
Phenol	0	/	10	0	–	0.458	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/	9	0	–	0.011	–	4.76E+03	n	–	–	–	no
2,4,5-Trichlorophenol	0	/	9	0	–	0.458	–	2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	10	0	–	0.458	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	10	0	–	0.458	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	10	0	–	0.458	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	7	0	–	0.458	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	10	0	–	0.458	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	10	0	–	0.458	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	10	0	–	0.458	–	2.13E+01	c	–	–	–	no

Table E.10-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Benzo(b)fluoranthene	0	/	10	0	–	0.458	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	10	0	–	0.458	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	10	0	–	0.458	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	10	0	–	0.458	–	2.06E+04	c	–	–	–	no
1-Chloronaphthalene	0	/	9	0	–	0.458	–	2.48E+04	n	–	–	–	no
2-Chloronaphthalene	0	/	10	0	–	0.458	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	10	0	–	0.458	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	10	0	–	0.458	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	10	0	–	0.458	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	10	0	–	0.458	–	2.13E+02	c	–	–	–	no
2-Methylnaphthalene	0	/	9	0	–	0.458	–	8.91E+02	n	–	–	–	no
Naphthalene	0	/	10	0	–	0.458	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	10	0	–	0.458	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	10	0	–	0.458	–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	1	0	–	13	–	NA	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)	0	/	10	0	–	41.6	–	NA	n	–	–	–	no
Explosives													
2,6-Dinitrotoluene	0	/	10	0	–	0.458	–	2.39E+02	n	–	–	–	no
Inorganics													
Arsenic	9	/	14	64.3	9.64	3.47	no	6.54E+01	n	no	–	1.47E-01	no
Barium	9	/	14	64.3	179	96	YES	4.35E+03	n	no	–	4.11E-02	no
Cadmium	0	/	14	0	–	6.93	no	3.09E+02	n	–	–	–	no
Chromium	2	/	27	7.41	19.3	34.7	no	4.49E+02	n	no	–	4.29E-02	no
Chromium (Hexavalent)	4	/	29	13.8	14	6.41	no	4.49E+02	n	no	–	3.11E-02	no
Lead	5	/	14	35.7	14.7	24	no	8.00E+02	IEUBK	no	–	–	no
Mercury	3	/	14	21.4	0.0474	0.1	YES	6.36E+01	n	no	–	7.45E-04	no
Selenium	0	/	14	0	–	3.47	no	1.55E+03	n	–	–	–	no
Silver	5	/	14	35.7	74.8	34.7	no	1.55E+03	n	no	–	4.83E-02	no

Total Maximum / Screening Level Ratios	NA	0.3
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	NA	0.3

Target Organ Max/SL Ratios	
Kidney and Liver	0.04
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.2
Lungs	0.07
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	0.04
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA

Table E.10-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
							Not Available/ Not Reported		NA	

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.10-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	1	/	25	4	0.176	yes
Acetophenone	0	/	9	0	–	no
Acrolein	0	/	16	0	–	no
Acrylonitrile	0	/	25	0	–	no
Benzene	0	/	25	0	–	no
Bis(2-chloroethyl)ether	0	/	25	0	–	no
Bis(2-chloroisopropyl)ether	0	/	25	0	–	no
Bromobenzene	0	/	9	0	–	no
Bromodichloromethane	0	/	22	0	–	no
Bromomethane	0	/	25	0	–	no
2-Butanone	0	/	25	0	–	no
tert-Butyl alcohol	0	/	9	0	–	no
n-Butylbenzene	0	/	9	0	–	no
sec-Butylbenzene	0	/	9	0	–	no
tert-Butylbenzene	0	/	9	0	–	no
Carbon disulfide	0	/	25	0	–	no
Carbon tetrachloride	0	/	25	0	–	no
CFC-11	0	/	25	0	–	no
CFC-12	0	/	12	0	–	no
Chlorobenzene	0	/	25	0	–	no
Chlorobromomethane	0	/	9	0	–	no
Chloroethane	0	/	25	0	–	no
2-Chloroethyl vinyl ether	0	/	25	0	–	no
Chloroform	0	/	25	0	–	no
Chloromethane	0	/	25	0	–	no
2-Chlorophenol	0	/	25	0	–	no
2-Chlorotoluene	0	/	9	0	–	no
4-Chlorotoluene	0	/	9	0	–	no
Cymene	0	/	9	0	–	no
Dibenzofuran	0	/	22	0	–	no
1,2-Dibromoethane	0	/	9	0	–	no
Dibromomethane	0	/	25	0	–	no
1,2-Dichlorobenzene	0	/	25	0	–	no
1,4-Dichlorobenzene	0	/	25	0	–	no
1,4 Dichloro-2-butene	0	/	16	0	–	no
trans-1,4-Dichlorobutene	0	/	9	0	–	no
1,1-Dichloroethane	0	/	25	0	–	no
1,2-Dichloroethane	0	/	25	0	–	no
1,1-Dichloroethylene	0	/	25	0	–	no
cis-1,2-Dichloroethene	0	/	22	0	–	no
trans-1,2-Dichloroethene	0	/	25	0	–	no
Dichloromethane	0	/	18	0	–	no
1,2-Dichloropropane	0	/	25	0	–	no
1,3-Dichloropropane	0	/	9	0	–	no
2,2-Dichloropropane	0	/	9	0	–	no
1,1-Dichloropropene	0	/	9	0	–	no
cis-1,3-Dichloropropene	0	/	25	0	–	no
trans-1,3-Dichloropropene	0	/	25	0	–	no
Ethyl methacrylate	0	/	16	0	–	no
Ethylbenzene	0	/	25	0	–	no
Iodomethane	0	/	25	0	–	no
Isopropylbenzene	0	/	9	0	–	no
m-Dichlorobenzene	0	/	25	0	–	no
Methyl n-butyl ketone	0	/	25	0	–	no
Methylbenzene	0	/	25	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	25	0	–	no
Methyl tert-butyl ether (MTBE)	0	/	9	0	–	no
Nitrobenzene	0	/	25	0	–	no
n-Propylbenzene	0	/	9	0	–	no
Styrene (monomer)	0	/	25	0	–	no
Tetrachloroethene	0	/	25	0	–	no

Table E.10-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
1,1,1,2-Tetrachloroethane	0	/	9	0	–	no
1,1,2,2-Tetrachloroethane	0	/	25	0	–	no
1,1,1-Trichloroethane	0	/	25	0	–	no
1,1,2-Trichloroethane	0	/	25	0	–	no
1,2,3-Trichlorobenzene	0	/	9	0	–	no
1,2,3-Trichloropropane	0	/	25	0	–	no
1,2,4-Trichlorobenzene	0	/	25	0	–	no
1,2,4-Trimethylbenzene	0	/	9	0	–	no
1,3,5-Trimethylbenzene	0	/	9	0	–	no
Trichloroethylene	0	/	25	0	–	no
Vinyl acetate	0	/	16	0	–	no
Vinyl chloride	0	/	25	0	–	no
m,p-Xylene	0	/	9	0	–	no
o-Xylene	0	/	9	0	–	no
Xylenes	0	/	16	0	–	no
Semi Volatile Organic Compounds						
n-Nitrosodi-n-butylamine	0	/	9	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	25	0	–	no
Acenaphthylene	0	/	18	0	–	no
Anthracene	0	/	25	0	–	no
1-Chloronaphthalene	0	/	22	0	–	no
2-Chloronaphthalene	0	/	25	0	–	no
Fluorene	0	/	25	0	–	no
1-Methylnaphthalene	0	/	9	0	–	no
2-Methylnaphthalene	1	/	22	5	1.37	yes
Naphthalene	0	/	25	0	–	no
Phenanthrene	1	/	25	4	0.496	yes

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway.

Table E.10-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds												
Acetone	0	/	70	0	–	0.01		2.20E+02	n	–	–	–
Acetophenone	0	/	70	0	–	5		8.00E+02	n	–	–	–
Acrylonitrile	0	/	70	0	–	0.001		8.50E-02	c	–	–	–
Benzene	0	/	70	0	–	0.001		1.40E-02	c	–	–	–
Bis(2-chloroethyl)ether	0	/	70	0	–	5	^	1.00E-01	c	–	–	–
Bis(2-chloroisopropyl)ether	0	/	70	0	–	5		NA	c	–	–	–
Bromobenzene	0	/	70	0	–	0.001		NA	n	–	–	–
Bromodichloromethane	0	/	70	0	–	0.001		2.10E-02	c	–	–	–
Bromomethane	0	/	70	0	–	0.005		2.00E-02	n	–	–	–
2-Butanone	0	/	70	0	–	0.005		4.40E+02	n	–	–	–
tert-Butyl alcohol	0	/	11	0	–	0.005		NA	n	–	–	–
n-Butylbenzene	0	/	70	0	–	0.001		2.60E-01	n	–	–	–
sec-Butylbenzene	4	/	70	5.71	0.00227	0.001		2.50E-01	n	no	–	9.08E-03
tert-Butylbenzene	0	/	70	0	–	0.001		2.90E-01	n	–	–	–
Carbon disulfide	0	/	70	0	–	0.001		5.60E-01	n	–	–	–
Carbon tetrachloride	0	/	70	0	–	0.001		5.00E-03	c	–	–	–
CFC-11	0	/	70	0	–	0.001		1.80E-01	n	–	–	–
CFC-12	0	/	70	0	–	0.001		1.40E-02	n	–	–	–
Chlorobenzene	0	/	70	0	–	0.001		3.90E-01	n	–	–	–
Chlorobromomethane	0	/	70	0	–	0.001		NA	n	–	–	–
Chloroethane	0	/	70	0	–	0.001		2.80E+01	n	–	–	–
2-Chloroethyl vinyl ether	0	/	70	0	–	0.005		NA	n	–	–	–
Chloroform	13	/	70	18.6	0.00219	0.001		8.00E-02	c	no	2.74E-02	–
Chloromethane	4	/	70	5.71	0.00334	0.001		6.70E-02	c	no	4.99E-02	–
2-Chlorophenol	0	/	70	0	–	5	^	1.10E+00	n	–	–	–
2-Chlorotoluene	0	/	70	0	–	0.001		NA	n	–	–	–
4-Chlorotoluene	0	/	70	0	–	0.001		NA	n	–	–	–
Cymene	0	/	70	0	–	0.001		NA	n	–	–	–
Dibenzofuran	0	/	70	0	–	5		NA	n	–	–	–
1,2-Dibromoethane	0	/	70	0	–	0.001		3.60E-03	c	–	–	–
Dibromomethane	0	/	70	0	–	0.001		9.90E-01	n	–	–	–
1,2-Dichlorobenzene	0	/	70	0	–	5	^	2.60E+00	n	–	–	–
1,4-Dichlorobenzene	0	/	70	0	–	5		8.20E+00	c	–	–	–
trans-1,4-Dichlorobutene	0	/	70	0	–	0.01		NA	c	–	–	–
1,1-Dichloroethane	15	/	70	21.4	0.0046	0.001		2.20E+00	c	no	2.09E-03	–
1,2-Dichloroethane	0	/	70	0	–	0.001		2.30E-02	c	–	–	–
1,1-Dichloroethylene	13	/	70	18.6	0.00515	0.001		1.90E-01	n	no	–	2.71E-02
cis-1,2-Dichloroethene	0	/	70	0	–	0.001		2.10E-01	n	–	–	–
trans-1,2-Dichloroethene	0	/	70	0	–	0.001		1.80E-01	n	–	–	–
Dichloromethane	0	/	70	0	–	0.005		5.80E-01	c	–	–	–
1,2-Dichloropropane	0	/	70	0	–	0.001		3.50E-02	c	–	–	–
1,3-Dichloropropane	0	/	70	0	–	0.001		NA	n	–	–	–
2,2-Dichloropropane	0	/	70	0	–	0.001		NA	n	–	–	–
1,1-Dichloropropene	0	/	70	0	–	0.001		NA	c	–	–	–
cis-1,3-Dichloropropene	0	/	70	0	–	0.001		NA	c	–	–	–
trans-1,3-Dichloropropene	0	/	70	0	–	0.001		NA	c	–	–	–

Table E.10-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)		Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Ethylbenzene	0	/	70	0	–		0.001		7.00E-01	c	–	–	–
Iodomethane	0	/	70	0	–		0.005		NA	n	–	–	–
Isopropylbenzene	3	/	70	4.29	0.00168		0.001		8.40E-03	n	no	–	2.00E-01
m-Dichlorobenzene	0	/	70	0	–		5	^	8.30E-01	n	–	–	–
Methyl n-butyl ketone	0	/	70	0	–		0.005		NA	n	–	–	–
Methylbenzene	0	/	70	0	–		0.001		1.50E+00	n	–	–	–
4-Methyl-2-pentanone (MIBK)	0	/	70	0	–		0.005		1.40E+01	n	–	–	–
Methyl tert-butyl ether (MTBE)	0	/	70	0	–		0.001		1.20E+02	c	–	–	–
Nitrobenzene	0	/	70	0	–		5	^	2.00E+00	c	–	–	–
n-Propylbenzene	0	/	70	0	–		0.001		3.20E-01	n	–	–	–
Styrene (monomer)	0	/	70	0	–		0.001		8.90E+00	n	–	–	–
Tetrachloroethene	0	/	70	0	–		0.001		1.10E-02	c	–	–	–
1,1,1,2-Tetrachloroethane	0	/	70	0	–		0.001		3.30E-02	c	–	–	–
1,1,2,2-Tetrachloroethane	0	/	70	0	–		0.001		3.00E-02	c	–	–	–
1,1,1-Trichloroethane	0	/	70	0	–		0.001		3.10E+00	n	–	–	–
1,1,2-Trichloroethane	0	/	70	0	–		0.001		4.10E-02	c	–	–	–
1,2,3-Trichlorobenzene	0	/	70	0	–		0.005		NA	n	–	–	–
1,2,3-Trichloropropane	0	/	70	0	–		0.001		2.90E-01	c	–	–	–
1,2,4-Trichlorobenzene	0	/	70	0	–		0.005		3.40E+00	n	–	–	–
1,2,4-Trimethylbenzene	0	/	70	0	–		0.001		2.40E-02	n	–	–	–
1,3,5-Trimethylbenzene	0	/	70	0	–		0.001		2.50E-02	n	–	–	–
Trichloroethylene	33	/	70	47.1	0.208		0.001		5.00E-03	c	YES	4.16E+01	–
Vinyl chloride	0	/	70	0	–		0.001		2.50E-03	c	–	–	–
m,p-Xylene	0	/	70	0	–		0.001		2.30E+01	n	–	–	–
o-Xylene	0	/	70	0	–		0.001		3.30E+01	n	–	–	–
Semi Volatile Organic Compounds													
n-Nitrosodi-n-butylamine	0	/	70	0	–		5	^	1.20E-03	c	–	–	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	70	0	–		5		NA	n	–	–	–
Acenaphthylene	0	/	70	0	–		5		NA	n	–	–	–
Anthracene	0	/	70	0	–		5		NA	n	–	–	–
1-Chloronaphthalene	0	/	70	0	–		5		NA	n	–	–	–
2-Chloronaphthalene	0	/	70	0	–		5		NA	n	–	–	–
Fluorene	0	/	70	0	–		5		NA	n	–	–	–
1-Methylnaphthalene	3	/	70	4.29	0.037	!	5		NA	c	NA	–	–
2-Methylnaphthalene	1	/	70	1.43	0.0708		5		3.30E+00	n	no	–	2.15E-02
Naphthalene	0	/	70	0	–		0.005		1.50E-01	c	–	–	–
Phenanthrene	0	/	70	0	–		5		NA	n	–	–	–
Total Maximum / Screening Level Ratios												41.7	0.3
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												4.E-04	0.3

Target Organ Max/SL Ratios	
Kidney and Liver	0.2
Brain	NA
Nasal	NA
Eyes	NA

Table E.10-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
						Skin		NA
						Lungs		0.02
						Gastrointestinal Tract and Forestomach		NA
						Whole Body		NA
						Blood		NA
						Nervous System		NA
						Dental		NA
						Red Blood Cells		NA
						Glands		0.2
						Fetus		NA
						Immune System		NA
						Development		NA
						Reproduction		NA
						Bone		NA
						Not Available/ Not Reported		0.009

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

Table E.10-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	70	0	–		2.20E+02	n	–	–	–	no
Acetophenone	0	/	70	0	–		8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	70	0	–		8.50E-02	c	–	–	–	no
Benzene	0	/	70	0	–		1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	70	0	–		1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	70	0	–		NA	c	–	–	–	no
Bromobenzene	0	/	70	0	–		NA	n	–	–	–	no
Bromodichloromethane	0	/	70	0	–		2.10E-02	c	–	–	–	no
Bromomethane	0	/	70	0	–		2.00E-02	n	–	–	–	no
2-Butanone	0	/	70	0	–		4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	11	0	–		NA	n	–	–	–	no
n-Butylbenzene	0	/	70	0	–		2.60E-01	n	–	–	–	no
sec-Butylbenzene	4	/	70	5.71	0.00227	m	2.50E-01	n	no	–	9.08E-03	yes
tert-Butylbenzene	0	/	70	0	–		2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	70	0	–		5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	70	0	–		5.00E-03	c	–	–	–	no
CFC-11	0	/	70	0	–		1.80E-01	n	–	–	–	no
CFC-12	0	/	70	0	–		1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	70	0	–		3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	70	0	–		NA	n	–	–	–	no
Chloroethane	0	/	70	0	–		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	70	0	–		NA	n	–	–	–	no
Chloroform	13	/	70	18.6	0.00101		8.00E-02	c	no	1.26E-02	–	yes
Chloromethane	4	/	70	5.71	0.00334	m	6.70E-02	c	no	4.99E-02	–	yes
2-Chlorophenol	0	/	70	0	–		1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	70	0	–		NA	n	–	–	–	no
4-Chlorotoluene	0	/	70	0	–		NA	n	–	–	–	no
Cymene	0	/	70	0	–		NA	n	–	–	–	no
Dibenzofuran	0	/	70	0	–		NA	n	–	–	–	no
1,2-Dibromoethane	0	/	70	0	–		3.60E-03	c	–	–	–	no
Dibromomethane	0	/	70	0	–		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	70	0	–		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	70	0	–		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	70	0	–		NA	c	–	–	–	no
1,1-Dichloroethane	15	/	70	21.4	0.00124		2.20E+00	c	no	5.64E-04	–	yes
1,2-Dichloroethane	0	/	70	0	–		2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	13	/	70	18.6	0.0012		1.90E-01	n	no	–	6.32E-03	yes
cis-1,2-Dichloroethene	0	/	70	0	–		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	70	0	–		1.80E-01	n	–	–	–	no
Dichloromethane	0	/	70	0	–		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	70	0	–		3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	70	0	–		NA	n	–	–	–	no
2,2-Dichloropropane	0	/	70	0	–		NA	n	–	–	–	no
1,1-Dichloropropene	0	/	70	0	–		NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	70	0	–		NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	70	0	–		NA	c	–	–	–	no

Table E.10-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects	/	number of samples	FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Ethylbenzene	0	/	70	0	–		7.00E-01	c	–	–	–	no
Iodomethane	0	/	70	0	–		NA	n	–	–	–	no
Isopropylbenzene	3	/	70	4.29	0.00168	m	8.40E-03	n	no	–	2.00E-01	yes
m-Dichlorobenzene	0	/	70	0	–		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	70	0	–		NA	n	–	–	–	no
Methylbenzene	0	/	70	0	–		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	70	0	–		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	70	0	–		1.20E+02	c	–	–	–	no
Nitrobenzene	0	/	70	0	–		2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/	70	0	–		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	70	0	–		8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	70	0	–		1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	70	0	–		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	70	0	–		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	70	0	–		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	70	0	–		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	70	0	–		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	70	0	–		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	70	0	–		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	70	0	–		2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	70	0	–		2.50E-02	n	–	–	–	no
Trichloroethylene	33	/	70	47.1	0.0381		5.00E-03	c	YES	7.62E+00	–	yes
Vinyl chloride	0	/	70	0	–		2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	70	0	–		2.30E+01	n	–	–	–	no
o-Xylene	0	/	70	0	–		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds												
n-Nitrosodi-n-butylamine	0	/	70	0	–		1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/	70	0	–		NA	n	–	–	–	no
Acenaphthylene	0	/	70	0	–		NA	n	–	–	–	no
Anthracene	0	/	70	0	–		NA	n	–	–	–	no
1-Chloronaphthalene	0	/	70	0	–		NA	n	–	–	–	no
2-Chloronaphthalene	0	/	70	0	–		NA	n	–	–	–	no
Fluorene	0	/	70	0	–		NA	n	–	–	–	no
1-Methylnaphthalene	3	/	70	4.29	0.037	m	NA	c	NA	–	–	yes
2-Methylnaphthalene	1	/	70	1.43	0.0708	m	3.30E+00	n	no	–	2.15E-02	yes
Naphthalene	0	/	70	0	–		1.50E-01	c	–	–	–	no
Phenanthrene	0	/	70	0	–		NA	n	–	–	–	no

Total Maximum / Screening Level Ratios	8	0.2
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	8.E-05	0.2

Target Organ Max/SL Ratios	
Kidney and Liver	0.2
Brain	NA
Nasal	NA
Eyes	NA

Table E.10-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
					Skin		NA	
					Lungs		0.02	
					Gastrointestinal Tract and Forestomach		NA	
					Whole Body		NA	
					Blood		NA	
					Nervous System		NA	
					Dental		NA	
					Red Blood Cells		NA	
					Glands		0.2	
					Fetus		NA	
					Immune System		NA	
					Development		NA	
					Reproduction		NA	
					Bone		NA	
					Not Available/ Not Reported		0.009	

Notes:

– = Not applicable.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.10-HHRA-6
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	1.76E-01 m	–
sec-Butylbenzene	no	no	no	no	yes	–	–	–	2.27E-03 m
Chloroform	no	no	no	no	yes	–	–	–	1.01E-03
Chloromethane	no	no	no	no	yes	–	–	–	3.34E-03 m
1,1-Dichloroethane	no	no	no	no	yes	–	–	–	1.24E-03
1,1-Dichloroethylene	no	no	no	no	yes	–	–	–	1.20E-03
Isopropylbenzene	no	no	no	no	yes	–	–	–	1.68E-03 m
Trichloroethylene	no	no	no	no	yes	–	–	–	3.81E-02
Polycyclic Aromatic Hydrocarbons									
1-Methylnaphthalene	no	no	no	no	yes	–	–	–	3.70E-02 m
2-Methylnaphthalene	no	no	no	yes	yes	–	–	1.37E+00 m	7.08E-02 m
Phenanthrene	no	no	no	yes	no	–	–	4.96E-01 m	–
Inorganics									
Arsenic	yes	no	no	no	no	8.56E+00 m	–	–	–
Chromium	yes	no	no	no	no	6.40E+00 m	–	–	–
Silver	yes	no	no	no	no	1.08E+01 m	–	–	–

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.10-HHRA-7
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
67641	1.76E+02	Acetone
91576	1.37E+03	2-Methylnaphthalene
85018	4.96E+02	Phenanthrene

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G45) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
16.7	15	550	0	550			SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SIL	1.55	0.440	0.26	0.0015					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.10-HHRA-8
Intercalculations
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	1.18E+03	1.65E+00	2.71E-03	4.20E+06	7.45E-05	8.81E-02
2-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	9.38E-04	3.11E+03	1.65E+00	9.38E-04	1.27E+19	7.45E-05	2.32E-01
Phenanthrene	13,840	1.19E-05	5.02E-04	1.77E-04	1.61E-03	1.61E-03	5.57E+00	1.65E+00	1.61E-03	1.42E+11	7.45E-05	4.15E-04

Table E.10-HHRA-9
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Groundwater Concentration C_W (µg/L)	Chemical
135988	2.27	sec-Butylbenzene
67663	1.01	Chloroform
74873	3.34	Chloromethane
75343	1.24	1,1-Dichloroethane
75354	1.20	1,1-Dichloroethene
98828	1.68	Cumene
79016	38.1	Trichloroethylene
90120	37.0	1-Methylnaphthalene
91576	70.8	2-Methylnaphthalene

ENTER Average soil/ groundwater temperature, T_S (^oC)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
16.7	15	640	640	0	0	A	SIL	SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3) (Lookup Soil Parameters)				
SIL	1.55	0.440	0.26				

(Lookup Soil Parameters)

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)
10	40	1000	1000	244	0.1	0.25

Table E.10-HHRA-10
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical Name	Enthalpy of vaporization at ave. gw temp $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. gw temp H_{TS} (atm-m^3/mol)	Henry's law constant at ave. gw temp H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
sec-Butylbenzene	108,785	9.16E-05	3.85E-03	1.77E-04	1.43E-03	3.86E-04	1.11E-03	8.75E+00	1.65E+00	1.43E-03	3.23E+12	5.18E-05	4.53E-04
Chloroform	7,638	2.54E-03	1.07E-01	1.77E-04	1.78E-03	2.00E-04	9.57E-04	1.08E+02	1.65E+00	1.78E-03	1.11E+10	4.83E-05	5.21E-03
Chloromethane	4,405	7.13E-03	3.00E-01	1.77E-04	2.16E-03	2.28E-04	1.12E-03	1.00E+03	1.65E+00	2.16E-03	2.05E+08	5.22E-05	5.22E-02
1,1-Dichloroethane	7,492	3.91E-03	1.65E-01	1.77E-04	1.27E-03	1.42E-04	6.82E-04	2.04E+02	1.65E+00	1.27E-03	1.20E+14	4.01E-05	8.19E-03
1,1-Dichloroethene	6,471	1.91E-02	8.03E-01	1.77E-04	1.54E-03	1.63E-04	8.00E-04	9.63E+02	1.65E+00	1.54E-03	4.34E+11	4.40E-05	4.23E-02
Cumene	12,450	6.36E-01	2.67E+01	1.77E-04	1.11E-03	1.16E-04	5.74E-04	4.49E+04	1.65E+00	1.11E-03	1.32E+16	3.62E-05	1.62E+00
Trichloroethylene	8,501	6.83E-03	2.87E-01	1.77E-04	1.35E-03	1.46E-04	7.11E-04	1.09E+04	1.65E+00	1.35E-03	1.76E+13	4.11E-05	4.50E-01
1-Methylnaphthalene	15,972	1.20E-04	5.05E-03	1.77E-04	9.11E-04	3.26E-04	7.62E-04	1.87E+02	1.65E+00	9.11E-04	4.64E+19	4.28E-05	8.00E-03
2-Methylnaphthalene	15,966	2.39E-04	1.01E-02	1.77E-04	8.66E-04	2.06E-04	6.42E-04	7.13E+02	1.65E+00	8.66E-04	4.88E+20	3.87E-05	2.76E-02

Table E.10-HHRA-11

Estimates of Vapor Concentrations in Indoor Air Migrating from Total Soil and Saturated Vadose Zone Soil Water

Solid Waste Managment Unit 143 (SWMU 143)

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Total Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Total Soil (EPCair_s) [b] ($\mu g/m^3$)	Exposure Point Concentration in Saturated Vadose Zone Soil Water (EPCgw) [a] (mg/L)		Exposure Point Concentration in Indoor Air due to Saturated Saturated Vadose Zone Soil Water (EPCair_gw) [b] ($\mu g/m^3$)
Volatile Organic Compounds						
Acetone	1.76E-01	m	8.81E-02	–		–
sec-Butylbenzene	–		–	2.27E-03	m	4.53E-04
Chloroform	–		–	1.01E-03		5.21E-03
Chloromethane	–		–	3.34E-03	m	5.22E-02
1,1-Dichloroethane	–		–	1.24E-03		8.19E-03
1,1-Dichloroethylene	–		–	1.20E-03		4.23E-02
Isopropylbenzene	–		–	1.68E-03	m	1.62E+00
Trichloroethylene	–		–	3.81E-02		4.50E-01
1-Methylnaphthalene	–		–	3.70E-02	m	8.00E-03
2-Methylnaphthalene	1.37E+00	m	2.32E-01	7.08E-02	m	2.76E-02
Phenanthrene	4.96E-01	m	4.15E-04	–		–

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

—	Not applicable.
$\mu g/m^3$	Micrograms per cubic meter.
mg/kg	Milligrams per kilogram.
mg/L	Milligrams per liter.
m	Maximum.

[a] EPCs are presented in table Table E.10-HHRA-6.

[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a,b), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.10-HHRA-12
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapors in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	8.81E-02	m	NA	NA	–	3.1E+01	5.8E-07	100%
2-Methylnaphthalene	2.32E-01	m	NA	NA	–	NA	NA	–
Phenanthrene	4.15E-04	m	NA	NA	–	NA	NA	–
			Total ELCR	NA	NA	Total HI	0.0000006	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	NA	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	NA	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	0.0000006

[a] From Table E.10-HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.10-HHRA-13
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapors in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
sec-Butylbenzene	4.53E-04	m	NA	NA	–	4.0E-01	2.3E-07	<1%
Chloroform	5.21E-03		2.30E-02	8.8E-09	12%	9.8E-02	1.1E-05	1%
Chloromethane	5.22E-02	m	NA	NA	–	9.0E-02	1.2E-04	12%
1,1-Dichloroethane	8.19E-03		1.60E-03	9.6E-10	1%	NA	NA	–
1,1-Dichloroethylene	4.23E-02		NA	NA	–	2.0E-01	4.4E-05	4%
Isopropylbenzene	1.62E+00	m	NA	NA	–	4.0E-01	8.3E-04	83%
Trichloroethylene	4.50E-01		2.00E-03	6.6E-08	87%	NA	NA	–
1-Methylnaphthalene	8.00E-03	m	NA	NA	–	NA	NA	–
2-Methylnaphthalene	2.76E-02	m	NA	NA	–	NA	NA	–
			Total ELCR	8E-08	100%	Total HI	0.001	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.001	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.0001	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	NA

[a] From Table E.10-HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.10-HHRA-14
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Soil (0-2 foot Depth Interval)
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCs (mg/kg)		VF *or* PEF [a] (m³/kg)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
					ELCRo	ELCRd	ELCRi	ELCR		HQo	HQd	HQi	HI	
Inorganics														
Arsenic	8.56E+00	m	6.61E+09	P	2.0E-05	4.6E-05	2.3E-09	6.7E-05	100%	3.6E-01	3.1E-02	8.3E-05	4.0E-01	93%
Chromium	6.40E+00	m	6.61E+09	P	NA	NA	NA	NA	–	NA	NA	NA	NA	–
Silver	1.08E+01	m	6.61E+09	P	NA	NA	NA	NA	–	2.8E-02	–	NA	2.8E-02	7%
Total Risk or Hazard					Total ELCR			7E-05	100%	Total HI			0.4	100%

[a] Minimum of the volatilization factor (identified with [V]) and the particulate emission factor (identified with [P]), both derived on Table E.2-9.

–	Not applicable.	HQ	Hazard quotient.	NA	Not available.
ELCR	Excess lifetime cancer risk.	m	EPC based on maximum.	PEF	Particulate emission factor.
EPCs	Exposure point concentration in surface soil (mg/kg).	m^3/kg	Cubic meters per kilogram.	VF	Volatilization factor.
HI	Hazard index (sum of the HQs).	mg/kg	Milligrams per kilogram.		

Equations:

ELCRo = (EPCs × 1 × 114 × 350 × CSFo) / (1,000,000 × 25,550)
ELCRd = (EPCs × 8,811 × ABSd × 350 × CSFa) / (1,000,000 × 25,550)
ELCRi = (EPCs × 24 × 0.042 ×350 × 30 × URF) / ([VF or PEF] × 25,550)

HQo = (EPCs × 1 × 200 × 350 × 6) / (1,000,000 × 15 × 2,190 × RfDo)
HQd = (EPCs × 2,800 × 0.2 × ABSd × 350 × 6) / (1,000,000 × 15 × 2,190 × RfDa)
HQi = (EPCs × 24 × 0.042 × 350 × 6) / ([VF or PEF] × 2,190 × RfC)

Table E.10-HHRA-15
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	8.81E-02	m	NA	NA	–	3.1E+01	2.7E-06	100%
2-Methylnaphthalene	2.32E-01	m	NA	NA	–	NA	NA	–
Phenanthrene	4.15E-04	m	NA	NA	–	NA	NA	–
			Total ELCR	NA		Total HI	0.000003	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	NA	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	NA	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	0.000003

[a] From Table E.10-HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.10-HHRA-16
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
sec-Butylbenzene	4.53E-04	m	NA	NA	–	4.0E-01	1.1E-06	<1%
Chloroform	5.21E-03		2.30E-02	4.9E-08	12%	9.8E-02	5.1E-05	1%
Chloromethane	5.22E-02	m	NA	NA	–	9.0E-02	5.6E-04	12%
1,1-Dichloroethane	8.19E-03		1.60E-03	5.4E-09	1%	NA	NA	–
1,1-Dichloroethylene	4.23E-02		NA	NA	–	2.0E-01	2.0E-04	4%
Isopropylbenzene	1.62E+00	m	NA	NA	–	4.0E-01	3.9E-03	83%
Trichloroethylene	4.50E-01		2.00E-03	3.7E-07	87%	NA	NA	–
1-Methylnaphthalene	8.00E-03	m	NA	NA	–	NA	NA	–
2-Methylnaphthalene	2.76E-02	m	NA	NA	–	NA	NA	–
			Total ELCR	4E-07	100%	Total HI	0.005	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.004	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.001	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	NA

[a] From Table E.10-HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.10-HHRA-17
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 143 (SWMU 143)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Current/Future Commercial/Industrial Worker Receptor		
Vapor Migration from Soil to Indoor Air	NC	0.0000006
Vapor Migration from Saturated Vadose Zone Soil Water to Indoor Air	8E-08	0.001
TOTAL SITE RISKS:	8E-08	0.001
Hypothetical Future Resident Receptor (Adult and Child)		
Direct Contact with Soil (0-2 foot)	7E-05	0.4
Vapor Migration from Soil to Indoor Air	NC	0.000003
Vapor Migration from Saturated Vadose Zone Soil Water to Indoor Air	4E-07	0.005
TOTAL SITE RISKS:	7E-05	0.4

COPC Constituent of Potential Concern.
NA Not applicable. No COPCs selected for this exposure scenario.
NC None of the COPCs are classified as carcinogens.

Table E.10.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	3	0	–	0.0249		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	3	0	–	0.00623		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	3	0	–	0.0125		no	1,000	*R4*	NA	no	ND
Benzene	0	/	3	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	3	0	–	0.411		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	3	0	–	0.411		no	NA		NA	no	ND
Bromodichloromethane	0	/	3	0	–	0.00623		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	3	0	–	0.0125		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	3	0	–	0.0249		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	3	0	–	0.00623		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	3	0	–	0.00623		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	3	0	–	0.0125		no	16.4	*R5*	NA	no	ND
Chlorobenzene	0	/	3	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	3	0	–	0.00623		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	3	0	–	0.0125		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	3	0	–	0.0125		no	NA		NA	no	ND
Chloroform	0	/	3	0	–	0.00623	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	3	0	–	0.0125		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	3	0	–	0.411	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0	/	3	0	–	0.411		no	600	*R4s*	NA	no	ND
Dibromomethane	0	/	3	0	–	0.00623		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	3	0	–	0.00623		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	3	0	–	0.00623		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	3	0	–	0.00623		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	3	0	–	0.0125		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	3	0	–	0.00623		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	3	0	–	0.00623		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	3	0	–	0.00623		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	3	0	–	0.00623		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	3	0	–	0.00623		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	2	0	–	0.00623		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	3	0	–	0.00623		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	3	0	–	0.00623		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	3	0	–	0.00623		no	0.398	*R5*	NA	no	ND
Ethyl methacrylate	0	/	3	0	–	0.00623		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	3	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	3	0	–	0.0125		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	3	0	–	0.0249		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	3	0	–	0.00623		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	3	0	–	0.0249		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	3	0	–	0.411		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	3	0	–	0.00623		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	3	0	–	0.00623		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	3	0	–	0.00623		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	3	0	–	0.00623		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	3	0	–	0.00623		no	28.6	*R5*	NA	no	ND

Table E.10.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,2,3-Trichloropropane	0	/	3	0	–	0.00623		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	3	0	–	0.411		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	3	0	–	0.00623	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	3	0	–	0.0249		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	3	0	–	0.0125	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	3	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	3	0	–	1.99		no	NA		NA	no	ND
Benzoic acid	0	/	3	0	–	1.99		no	NA		NA	no	ND
Benzyl alcohol	0	/	3	0	–	0.411		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	3	0	–	0.411	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	3	0	–	0.411	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	3	0	–	0.411		no	NA		NA	no	ND
p-Chloroaniline	0	/	3	0	–	0.411		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	3	0	–	0.411		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	3	0	–	0.411		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	3	0	–	0.411		no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	3	0	–	0.411		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	3	0	–	0.411		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	3	0	–	0.411	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	3	0	–	1.99		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	3	0	–	0.411		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/	3	0	–	1.99		no	NA		NA	no	ND
Dimethyl phthalate	0	/	3	0	–	0.411		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	3	0	–	0.411		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	3	0	–	0.411		no	709	*R5*	NA	no	ND
Diphenylamine	0	/	3	0	–	1.24	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	3	0	–	0.411	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	3	0	–	0.411	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	3	0	–	0.411		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	3	0	–	0.411		no	0.596	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	3	0	–	1.99	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	3	0	–	0.411		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	3	0	–	0.411		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	3	0	–	1.99		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	3	0	–	1.99		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	3	0	–	1.99		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	3	0	–	0.411		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	3	0	–	1.99		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	3	0	–	0.411		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	3	0	–	0.411		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	3	0	–	1.99		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	3	0	–	0.411		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	3	0	–	0.00623		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	3	0	–	0.411		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	3	0	–	0.411		no	10	*R4*	NA	no	ND

Table E.10.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	3	0	–	0.411		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	3	0	–	0.411		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	2	0	–	0.411		no	682	*R5*	NA	no	ND
Anthracene	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	3	0	–	0.411		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	3	0	–	0.411	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	3	0	–	0.411		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	3	0	–	0.411		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	3	0	–	0.411		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	3	0	–	0.411	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	3	0	–	0.411	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	3	0	–	0.411		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	3	0	–	0.411		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	3	0	–	0.411		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	3	0	–	0.411		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	3	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	0	/	3	0	–	37.3		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	3	0	–	0.411	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	2	/	3	66.7	8.56	3.12		no	18	*EcoSSL*	0.5	no	HQ ≤ 1
Barium	3	/	3	100	97.8	–		YES	330	*EcoSSL*	0.3	no	≤ BKGD
Cadmium	0	/	3	0	–	6.23	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	1	/	9	11.1	6.4	31.2		no	26	*EcoSSL*	0.2	no	HQ ≤ 1
Chromium (Hexavalent)	0	/	8	0	–	5.96		no	130	*EcoSSL*	NA	no	ND
Lead	2	/	3	66.7	6	2.8		no	11	*EcoSSL*	0.5	no	HQ ≤ 1
Mercury	2	/	3	66.7	0.0474	0.0244		YES	0.1	*R4*	0.5	no	≤ BKGD
Selenium	0	/	3	0	–	3.12	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	1	/	3	33.3	10.8	31.2		no	4.2	*EcoSSL*	3	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.10.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)	Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds										
Acetone	0 / 10	0	–	0.1	no	2.5	*R5*	NA	no	ND
Acrolein	0 / 10	0	–	0.2	no	5.27	*R5*	NA	no	ND
Acrylonitrile	0 / 10	0	–	0.1	no	1,000	*R4*	NA	no	ND
Benzene	0 / 10	0	–	0.0113	no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0 / 10	0	–	0.458	no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0 / 10	0	–	0.458	no	NA		NA	no	ND
Bromodichloromethane	0 / 9	0	–	0.0113	no	0.54	*R5*	NA	no	ND
Bromomethane	0 / 10	0	–	0.0226	no	0.235	*R5*	NA	no	ND
2-Butanone	0 / 10	0	–	0.1	no	89.6	*R5*	NA	no	ND
Carbon disulfide	0 / 10	0	–	0.0113	no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0 / 10	0	–	0.0113	no	1,000	*R4*	NA	no	ND
CFC-11	0 / 10	0	–	0.0226	no	16.4	*R5*	NA	no	ND
CFC-12	0 / 1	0	–	0.02	no	39.5	*R5*	NA	no	ND
Chlorobenzene	0 / 10	0	–	0.0113	no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0 / 10	0	–	0.0113	no	2.05	*R5*	NA	no	ND
Chloroethane	0 / 10	0	–	0.0226	no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0 / 10	0	–	0.0226	no	NA		NA	no	ND
Chloroform	0 / 10	0	–	0.0113 ^	no	0.001	*R4*	NA	no	ND
Chloromethane	0 / 10	0	–	0.0226	no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0 / 10	0	–	0.458 ^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0 / 9	0	–	0.458	no	600	*R4s*	NA	no	ND
Dibromomethane	0 / 10	0	–	0.02	no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0 / 10	0	–	0.3	no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0 / 10	0	–	0.3	no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0 / 10	0	–	0.3	no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0 / 10	0	–	0.0226	no	NA		NA	no	ND
1,1-Dichloroethane	0 / 10	0	–	0.0113	no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0 / 10	0	–	0.0113	no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0 / 10	0	–	0.0113	no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0 / 9	0	–	0.0113	no	NA		NA	no	ND
trans-1,2-Dichloroethene	0 / 10	0	–	0.0113	no	0.784	*R5*	NA	no	ND
Dichloromethane	0 / 7	0	–	0.0069	no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0 / 10	0	–	0.0113	no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0 / 10	0	–	0.0113	no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0 / 10	0	–	0.0113	no	0.398	*R5*	NA	no	ND
Ethanol	0 / 1	0	–	1	no	NA		NA	no	ND
Ethyl methacrylate	0 / 10	0	–	0.02	no	30	*R5*	NA	no	ND
Ethylbenzene	0 / 10	0	–	0.0113	no	0.05	*R4*	NA	no	ND
Iodomethane	0 / 10	0	–	0.0226	no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0 / 10	0	–	0.05	no	12.6	*R5*	NA	no	ND
Methylbenzene	0 / 10	0	–	0.0113	no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0 / 10	0	–	0.05	no	443	*R5*	NA	no	ND
Nitrobenzene	0 / 10	0	–	0.458	no	40	*R4*	NA	no	ND
Styrene (monomer)	0 / 10	0	–	0.0113	no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0 / 10	0	–	0.0113	no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0 / 10	0	–	0.0113	no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0 / 10	0	–	0.0113	no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0 / 10	0	–	0.0113	no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0 / 10	0	–	0.02	no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0 / 10	0	–	0.458	no	11.1	*R5*	NA	no	ND
Trichloroethylene	0 / 10	0	–	0.0113 ^	no	0.001	*R4*	NA	no	ND

Table E.10.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Vinyl acetate	0	/	10	0	–	0.0452		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	10	0	–	0.0226	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	10	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	10	0	–	2.22		no	NA		NA	no	ND
Benzoic acid	0	/	10	0	–	2.22		no	NA		NA	no	ND
Benzyl alcohol	0	/	9	0	–	0.458		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	10	0	–	0.458	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	10	0	–	0.458	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	10	0	–	0.458		no	NA		NA	no	ND
p-Chloroaniline	0	/	9	0	–	0.458		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	10	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	10	0	–	0.458		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	10	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	10	0	–	0.458		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	10	0	–	0.458		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	10	0	–	0.458	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	10	0	–	2.22		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	10	0	–	0.458		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/	9	0	–	2.22		no	NA		NA	no	ND
Dimethyl phthalate	0	/	10	0	–	0.458		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	10	0	–	0.458		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	10	0	–	0.458		no	709	*R5*	NA	no	ND
Diphenylamine	0	/	9	0	–	1.39	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	10	0	–	0.458	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	10	0	–	0.458	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	10	0	–	0.458		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	10	0	–	0.458		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	^	no	3.2E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	10	0	–	2.22	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	9	0	–	0.458		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	9	0	–	0.458		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	9	0	–	2.22		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	9	0	–	2.22		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	9	0	–	2.22		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	10	0	–	0.458		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	10	0	–	2.22		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	10	0	–	0.458		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	10	0	–	0.458		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	10	0	–	2.22	^	no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	10	0	–	0.458		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	9	0	–	0.0113		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	9	0	–	0.458		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	10	0	–	0.458		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	10	0	–	0.458		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	10	0	–	0.458		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	7	0	–	0.458		no	682	*R5*	NA	no	ND
Anthracene	0	/	10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	10	0	–	0.458		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND

Table E.10.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Benzo(b)fluoranthene	0	/ 10	0	–	0.458	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/ 10	0	–	0.458		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/ 10	0	–	0.458		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/ 10	0	–	0.458		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/ 9	0	–	0.458	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/ 10	0	–	0.458	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/ 10	0	–	0.458		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/ 10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/ 10	0	–	0.458		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/ 10	0	–	0.458		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/ 9	0	–	0.458		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/ 10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/ 10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/ 10	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)												
Petroleum hydrocarbons	0	/ 1	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/ 10	0	–	41.6		no	10,000	*API*	NA	no	ND
Explosives												
2,6-Dinitrotoluene	0	/ 10	0	–	0.458	^	no	0.0328	*R5*	NA	no	ND
Inorganics												
Arsenic	9	/ 14	64.3	9.64	3.47		no	18	*EcoSSL*	0.5	no	HQ ≤ 1
Barium	9	/ 14	64.3	179	96		YES	330	*EcoSSL*	0.5	no	≤ BKGD
Cadmium	0	/ 14	0	–	6.93	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	2	/ 27	7.41	19.3	34.7		no	26	*EcoSSL*	0.7	no	HQ ≤ 1
Chromium (Hexavalent)	4	/ 29	13.8	14	6.41		no	130	*EcoSSL*	0.1	no	HQ ≤ 1
Lead	5	/ 14	35.7	14.7	24		no	11	*EcoSSL*	1	no	HQ ≤ 1
Mercury	3	/ 14	21.4	0.0474	0.1		YES	0.1	*R4*	0.5	no	≤ BKGD
Selenium	0	/ 14	0	–	3.47	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	5	/ 14	35.7	74.8	34.7		no	4.2	*EcoSSL*	20	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.10.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Silver	10.8	m	4.2	*EcoSSL*	3	**YES**	**HQ > 1**	YES

Notes:
BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.10.ERA-4
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics							
Silver	25.75	4.2	*EcoSSL*	6	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.10.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]					
	BERA COPEC?		0-2 ft bgs				0-10 ft bgs	
	0-2 ft bgs	0-10 ft bgs	Maximum		Refined		Maximum	Refined
Constituent			**Scenario**		**Scenario**		**Scenario**	**Scenario**
Inorganics								
Silver	YES	YES	10.8	m	10.8	m	25.75	15.3

Notes:

BERA = Baseline Ecological Risk Assessment.

COPEC = Constituent of Potential Ecological Concern.

ft bgs = Feet below ground surface.

mg/kg = Milligrams per kilogram.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.10.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	1.68E-03	1.81E-02	0.034	6	0.6	0.006	0.06

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics											
Silver	10.8	m	3.42E-01	1.68E-03	3.69E+00	1.81E-02	0.032	6	0.6	0.005	0.05

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentratior EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	3.42E-01	3.69E+00	4.5	6	0.6	0.8	8

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	3.42E-01	3.69E+00	3.2	6	0.6	0.5	5

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	1.28E-03	1.38E-02	0.012	6	0.6	0.002	0.02

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics													
Silver	10.8	m	3.42E-01	1.68E-03	1.28E-03	3.69E+00	1.81E-02	1.38E-02	0.0000004	6	0.6	7E-08	7E-07

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	25.75	1.28E-03	3.30E-02	0.029	6	0.6	0.005	0.05

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Silver	15.3	3.42E-01	1.68E-03	1.28E-03	5.23E+00	2.57E-02	1.96E-02	0.00000057	6	0.6	0.0000001	0.000001

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	1.68E-03	1.81E-02	0.058	2.02	0.202	0.03	0.3

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics											
Silver	10.8	m	3.42E-01	1.68E-03	3.69E+00	1.81E-02	0.00001	2.02	0.202	5E-06	0.00005

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	3.42E-01	3.69E+00	4.2	2.02	0.202	2	20

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalcula EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
			Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics											
Silver	10.8	m	3.42E-01	1.68E-03	3.69E+00	1.81E-02	0.052	2.02	0.202	0.03	0.3

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	10.8	m	1.28E-03	1.38E-02	0.015	2.02	0.202	0.007	0.07

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculabl
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b] Mammal	Estimated Dietary Tissue Concentrations [c] (mg/kg) Mammal	Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day LOAEL	NOAEL	Refined Scenario HQ [f] LOAEL	NOAEL
Inorganics									
Silver	10.8	m	1.28E-03	1.38E-02	0.00000044	2.02	0.202	0.0000002	0.000002

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.10.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil			BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection		EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples		(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics																		
Silver	1	- 3	10.8	3	EcoSSL	avi	0.005	0.05	0.5	**5**	7E-08	0.0000007	0.000005	0.00005	0.03	0.3	0.0000002	0.000002

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.10.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Inorganics									
Silver	5	-	14	15.3	6	EcoSSL	avi	0.0000001	0.000001

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.11.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	1	-	2	50	18	-	18	0.1	-	0.1	HMW-07(2/22/1992)	9.03	–
Acrolein	0	-	2	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
2-Butanone	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Carbon disulfide	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Carbon tetrachloride	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
CFC-11	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chlorodibromomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloroethane	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroform	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloromethane	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	2	0	–	-	–	0.33	-	0.33	–	0.165	–
Dibromomethane	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4-Dichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4 Dichloro-2-butene	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1-Dichloroethylene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Dichloromethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloropropane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
cis-1,3-Dichloropropene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Ethanol	0	-	2	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Iodomethane	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.11.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	2	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	2	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	2	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	2	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	2	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.11.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4,6-Trichlorophenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	2	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	1	-	2	50	80	-	80	13	-	13	HMW-07(2/22/1992)	43.3	–
Total Petroleum Hydrocarbons (TPH)	1	-	2	50	80	-	80	13	-	13	HMW-07(2/22/1992)	43.3	–
2,6-Dinitrotoluene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	2	-	2	100	0.71	-	2.1	–	-	–	144B1	1.41	–
Barium	2	-	2	100	73	-	100	–	-	–	HMW-07(2/22/1992)	86.5	–
Cadmium	0	-	2	0	–	-	–	1	-	2.5	–	0.875	–
Lead	0	-	2	0	–	-	–	10	-	25	–	8.75	–
Mercury	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Selenium	0	-	2	0	–	-	–	0.42	-	0.48	–	0.225	–

Table E.11.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Silver	0 - 2	0	–	–	2	5	–	1.75	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.11.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	3	-	9	33.3	0.32	-	18	0.0211	-	0.1	HMW-07(2/22/1992)	2.63	–	Y
Acrolein	0	-	9	0	–	-	–	0.00527	-	0.2	–	0.0784	–	Y
Acrylonitrile	0	-	9	0	–	-	–	0.0105	-	0.1	–	0.0401	–	Y
Benzene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Bis(2-chloroethyl)ether	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Bis(2-chloroisopropyl)ether	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Bromodichloromethane	0	-	2	0	–	-	–	0.00527	-	0.00606	–	0.00283	–	Y
Bromomethane	0	-	9	0	–	-	–	0.005	-	0.0121	–	0.0032	–	Y
2-Butanone	0	-	9	0	–	-	–	0.0211	-	0.1	–	0.0414	–	Y
Carbon disulfide	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Carbon tetrachloride	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
CFC-11	0	-	9	0	–	-	–	0.01	-	0.0121	–	0.00514	–	Y
CFC-12	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Chlorobenzene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Chlorodibromomethane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	N
Chloroethane	0	-	9	0	–	-	–	0.01	-	0.0121	–	0.00514	–	Y
2-Chloroethyl vinyl ether	0	-	9	0	–	-	–	0.01	-	0.0121	–	0.00514	–	Y
Chloroform	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Chloromethane	0	-	9	0	–	-	–	0.01	-	0.0121	–	0.00514	–	Y
2-Chlorophenol	0	-	9	0	–	-	–	0.33	-	0.4	–	0.17	–	Y
Dibenzofuran	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	Y
Dibromomethane	0	-	9	0	–	-	–	0.00527	-	0.02	–	0.00841	–	Y
1,2-Dichlorobenzene	0	-	9	0	–	-	–	0.00527	-	0.3	–	0.117	–	Y
1,4-Dichlorobenzene	0	-	9	0	–	-	–	0.00527	-	0.3	–	0.117	–	Y
1,4 Dichloro-2-butene	0	-	9	0	–	-	–	0.0105	-	0.02	–	0.00903	–	Y
1,1-Dichloroethane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
1,2-Dichloroethane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
1,1-Dichloroethylene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
cis-1,2-Dichloroethene	0	-	2	0	–	-	–	0.00527	-	0.00606	–	0.00283	–	Y
trans-1,2-Dichloroethene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Dichloromethane	0	-	7	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
cis-1,3-Dichloropropene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
trans-1,3-Dichloropropene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Ethanol	0	-	7	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	9	0	–	-	–	0.00527	-	0.02	–	0.00841	–	Y

Table E.11.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Ethylbenzene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Iodomethane	0	-	9	0	–	-	–	0.0105	-	0.02	–	0.00903	–	Y
m-Dichlorobenzene	0	-	9	0	–	-	–	0.00527	-	0.3	–	0.117	–	Y
Methyl n-butyl ketone	0	-	9	0	–	-	–	0.0211	-	0.05	–	0.022	–	Y
Methylbenzene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	9	0	–	-	–	0.0211	-	0.05	–	0.022	–	Y
Nitrobenzene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Styrene (monomer)	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Tetrachloroethene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
1,1,2,2-Tetrachloroethane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
1,1,1-Trichloroethane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
1,1,2-Trichloroethane	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
1,2,3-Trichloropropane	0	-	9	0	–	-	–	0.00527	-	0.02	–	0.00841	–	Y
1,2,4-Trichlorobenzene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Trichloroethylene	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Vinyl acetate	0	-	9	0	–	-	–	0.01	-	0.0242	–	0.00641	–	Y
Vinyl chloride	0	-	9	0	–	-	–	0.01	-	0.0121	–	0.00514	–	Y
Xylenes	0	-	9	0	–	-	–	0.005	-	0.00606	–	0.00257	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	9	0	–	-	–	1.69	-	1.94	–	0.863	–	N
Benzoic acid	0	-	9	0	–	-	–	1.69	-	2	–	0.979	–	N
Benzyl alcohol	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	N
Benzyl butyl phthalate	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Bis(2-chloroethoxy)methane	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Bis(2-ethylhexyl)phthalate	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
4-Bromophenyl phenyl ether	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
p-Chloroaniline	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	N
4-Chloro-3-methylphenol	0	-	9	0	–	-	–	0.348	-	0.7	–	0.314	–	N
4-Chlorophenyl phenyl ether	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
3,3'-Dichlorobenzidine	0	-	9	0	–	-	–	0.348	-	0.7	–	0.314	–	N
2,4-Dichlorophenol	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Diethyl phthalate	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
2,4-Dimethylphenol	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
2,4-Dinitrophenol	0	-	9	0	–	-	–	1.69	-	2	–	0.979	–	N
2,4-Dinitrotoluene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
1,2-Diphenylhydrazine	0	-	2	0	–	-	–	1.69	-	1.94	–	0.908	–	N
Dimethyl phthalate	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Di-n-butyl phthalate	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N

Table E.11.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Di-n-octyl phthalate	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Diphenylamine	0	-	2	0	–	-	–	1.05	-	1.21	–	0.565	–	N
Hexachloro-1,3-butadiene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Hexachlorobenzene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Hexachlorocyclopentadiene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Hexachloroethane	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Methanamine, n-methyl-n-nitroso	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–	N
2-Methyl-4,6-dinitrophenol	0	-	9	0	–	-	–	1.69	-	2	–	0.979	–	N
2-Methylphenol	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	N
4-Methylphenol	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	N
2-Nitroaniline	0	-	2	0	–	-	–	1.69	-	1.94	–	0.908	–	N
3-Nitroaniline	0	-	2	0	–	-	–	1.69	-	1.94	–	0.908	–	N
p-Nitroaniline	0	-	2	0	–	-	–	1.69	-	1.94	–	0.908	–	N
2-Nitrophenol	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
4-Nitrophenol	0	-	9	0	–	-	–	1.69	-	2	–	0.979	–	N
n-Nitrosodi-n-propylamine	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
n-Nitrosodiphenylamine	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Pentachlorophenol	0	-	9	0	–	-	–	1.69	-	2	–	0.979	–	N
Phenol	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Tribromomethane	0	-	2	0	–	-	–	0.00527	-	0.00606	–	0.00283	–	N
2,4,5-Trichlorophenol	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	N
2,4,6-Trichlorophenol	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Acenaphthylene	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–	Y
Anthracene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Benzo(a)anthracene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Benzo(a)pyrene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Benzo(b)fluoranthene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Benzo(g,h,i)perylene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Benzo(k)fluoranthene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
1,2-Benzphenanthracene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
1-Chloronaphthalene	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	Y
2-Chloronaphthalene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Dibenz(a,h)anthracene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Fluoranthene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Fluorene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y

Table E.11.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Indeno(1,2,3-cd)pyrene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
2-Methylnaphthalene	0	-	2	0	–	-	–	0.348	-	0.4	–	0.187	–	Y
Naphthalene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Phenanthrene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	Y
Pyrene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Total Petroleum Hydrocarbons (TPH)														
Petroleum hydrocarbons	1	-	4	25	80	-	80	13	-	13	HMW-07(2/22/1992)	24.9	–	N
Total Petroleum Hydrocarbons (TPH)	1	-	6	16.7	80	-	80	13	-	36.3	HMW-07(2/22/1992)	22.2	–	N
Explosives														
2,6-Dinitrotoluene	0	-	9	0	–	-	–	0.3	-	0.4	–	0.158	–	N
Inorganics														
Arsenic	9	-	9	100	0.62	-	15.7	–	-	–	HMW-28(11/10/1993)	4.12	8.56	N
Barium	8	-	9	88.9	30	-	182	100	-	100	HMW-27(11/3/1993)	89.4	122.1	N
Cadmium	0	-	9	0	–	-	–	0.48	-	2.5	–	0.672	–	N
Chromium	2	-	2	100	12	-	13.1	–	-	–	HMW-28(11/10/1993)	12.6	–	N
Chromium (Hexavalent)	0	-	2	0	–	-	–	1.05	-	1.21	–	0.565	–	N
Lead	3	-	9	33.3	6.3	-	14.3	4.8	-	25	HMW-28(11/10/1993)	8.58	–	N
Mercury	0	-	9	0	–	-	–	0.0211	-	0.1	–	0.0381	–	N
Selenium	1	-	9	11.1	3.49	-	3.49	0.42	-	3.03	HMW-28(11/10/1993)	0.746	–	N
Silver	1	-	9	11.1	12	-	12	0.96	-	5.26	HMW-27(11/3/1993)	2.72	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.11.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acrylonitrile	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Butanone	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
sec-Butylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
tert-Butylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	1	-	2	50	0.00151	-	0.00151	0.001	-	0.001	HMW-07	0.00101	–	Y
CFC-12	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	1	-	2	50	0.00332	-	0.00332	0.001	-	0.001	HMW-07	0.00191	–	Y
Chloromethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chlorotoluene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,2-Dibromoethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,4-Dichlorobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,4-Dichlorobutene	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	1	-	2	50	0.00305	-	0.00305	0.001	-	0.001	HMW-07	0.00178	–	Y
cis-1,2-Dichloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y

Table E.11.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Methyl n-butyl ketone	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
n-Propylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	2	-	2	100	0.00313	-	0.00406	–	-	–	HMW-07	0.0036	–	Y
Vinyl chloride	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
1,4-Dioxane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachloro-1,3-butadiene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Tribromomethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Polycyclic Aromatic Hydrocarbons														
Naphthalene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Inorganics														
Arsenic	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–	N

Table E.11.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Barium	1	-	2	50	0.014	-	0.014	0.01	-	0.01	HMW-07	0.0095	–	N
Cadmium	1	-	2	50	0.002	-	0.002	0.001	-	0.001	HMW-26	0.00125	–	N
Chromium	2	-	2	100	0.006	-	0.607	–	-	–	HMW-07	0.307	–	N
Lead	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Mercury	0	-	2	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Phosphorus	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Selenium	2	-	2	100	0.164	-	0.169	–	-	–	HMW-26	0.167	–	N
Silver	0	-	2	0	–	-	–	0.002	-	0.002	–	0.001	–	N
Sodium	2	-	2	100	635	-	4130	–	-	–	HMW-26	2380	–	N
Zinc	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.11-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	1	/	2	50	18	0.1	–	2.63E+05	n	no	–	6.85E-05	no
Acrolein	0	/	2	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	2	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	2	0	–	0.005	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	2	0	–	0.3	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	2	0	–	0.3	–	3.10E+03	c	–	–	–	no
Bromomethane	0	/	2	0	–	0.005	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	2	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	2	0	–	0.005	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	2	0	–	0.005	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	2	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	2	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	2	0	–	0.005	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	2	0	–	0.005	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	2	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	2	0	–	0.01	–	NA	n	–	–	–	no
Chloroform	0	/	2	0	–	0.005	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	2	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	2	0	–	0.33	–	1.55E+03	n	–	–	–	no
Dibromomethane	0	/	2	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	2	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	2	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	2	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	2	0	–	0.005	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	2	0	–	0.005	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	2	0	–	0.005	–	1.83E+03	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	2	0	–	0.005	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	2	0	–	0.005	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	2	0	–	0.005	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	2	0	–	0.005	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	2	0	–	0.005	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	2	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	2	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	2	0	–	0.005	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	2	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	2	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	2	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	2	0	–	0.005	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	2	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	2	0	–	0.3	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	2	0	–	0.005	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	2	0	–	0.005	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	2	0	–	0.005	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	2	0	–	0.005	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	2	0	–	0.005	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	2	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	2	0	–	0.3	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	2	0	–	0.005	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	2	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	2	0	–	0.01	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	2	0	–	0.005	–	3.13E+03	n	–	–	–	no

Table E.11-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)		Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Semi Volatile Organic Compounds															
Benzidine	0	/	2	0	–		1.7	^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/	2	0	–		2		–	9.53E+05	n	–	–	–	no
Benzyl butyl phthalate	0	/	2	0	–		0.3		–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	2	0	–		0.3		–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/	2	0	–		0.3		–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	/	2	0	–		0.3		–	NA	n	–	–	–	no
4-Chloro-3-methylphenol	0	/	2	0	–		0.7		–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	2	0	–		0.3		–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	2	0	–		0.7		–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	2	0	–		0.3		–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	2	0	–		0.3		–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	2	0	–		0.3		–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	2	0	–		2		–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	2	0	–		0.3		–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/	2	0	–		0.3		–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/	2	0	–		0.3		–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/	2	0	–		0.3		–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	2	0	–		0.3		–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	2	0	–		0.3		–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	2	0	–		0.3		–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	2	0	–		0.3		–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	2	0	–		0.33		–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	2	0	–		2		–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/	2	0	–		0.3		–	NA	n	–	–	–	no
4-Nitrophenol	0	/	2	0	–		2		–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	2	0	–		0.3		–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	2	0	–		0.3		–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	2	0	–		2		–	1.03E+03	c	–	–	–	no
Phenol	0	/	2	0	–		0.3		–	6.88E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	2	0	–		0.3		–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	2	0	–		0.3		–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	0	/	2	0	–		0.3		–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	2	0	–		0.33		–	1.34E+04	n	–	–	–	no
Anthracene	0	/	2	0	–		0.3		–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	2	0	–		0.3		–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	2	0	–		0.3		–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	2	0	–		0.3		–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	2	0	–		0.3		–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	2	0	–		0.3		–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	2	0	–		0.3		–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/	2	0	–		0.3		–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	2	0	–		0.3		–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	2	0	–		0.3		–	8.91E+03	n	–	–	–	no
Fluorene	0	/	2	0	–		0.3		–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	2	0	–		0.3		–	2.13E+02	c	–	–	–	no
Naphthalene	0	/	2	0	–		0.3		–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	2	0	–		0.3		–	7.15E+03	n	–	–	–	no
Pyrene	0	/	2	0	–		0.3		–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)															
Petroleum hydrocarbons	1	/	2	50	80	!	13		–	NA	n	NA	–	–	no

Table E.11-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Total Petroleum Hydrocarbons (TPH)	1	/	2	50	80	!	13	–	NA	n	NA	–	–	no
Explosives														
2,6-Dinitrotoluene	0	/	2	0	–		0.3	–	2.39E+02	n	–	–	–	no
Inorganics														
Arsenic	2	/	2	100	2.1		–	YES	6.54E+01	n	no	–	3.21E-02	no
Barium	2	/	2	100	100		–	YES	4.35E+03	n	no	–	2.30E-02	no
Cadmium	0	/	2	0	–		2.5	no	3.09E+02	n	–	–	–	no
Lead	0	/	2	0	–		25	no	8.00E+02	IEUBK	–	–	–	no
Mercury	0	/	2	0	–		0.1	no	6.36E+01	n	–	–	–	no
Selenium	0	/	2	0	–		0.48	no	1.55E+03	n	–	–	–	no
Silver	0	/	2	0	–		5	no	1.55E+03	n	–	–	–	no
Total Maximum / Screening Level Ratios												NA	0.06	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												NA	0.06	

Target Organ Max/SL Ratios	
Kidney and Liver	0.02
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.03
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	0.02
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.
[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.

Table E.11-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction

[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.11-HHRA-2
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) / number of			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	3	/	9	33	18	yes
Acrolein	0	/	9	0	–	no
Acrylonitrile	0	/	9	0	–	no
Benzene	0	/	9	0	–	no
Bis(2-chloroethyl)ether	0	/	9	0	–	no
Bis(2-chloroisopropyl)ether	0	/	9	0	–	no
Bromodichloromethane	0	/	2	0	–	no
Bromomethane	0	/	9	0	–	no
2-Butanone	0	/	9	0	–	no
Carbon disulfide	0	/	9	0	–	no
Carbon tetrachloride	0	/	9	0	–	no
CFC-11	0	/	9	0	–	no
CFC-12	0	/	7	0	–	no
Chlorobenzene	0	/	9	0	–	no
Chloroethane	0	/	9	0	–	no
2-Chloroethyl vinyl ether	0	/	9	0	–	no
Chloroform	0	/	9	0	–	no
Chloromethane	0	/	9	0	–	no
2-Chlorophenol	0	/	9	0	–	no
Dibenzofuran	0	/	2	0	–	no
Dibromomethane	0	/	9	0	–	no
1,2-Dichlorobenzene	0	/	9	0	–	no
1,4-Dichlorobenzene	0	/	9	0	–	no
1,4 Dichloro-2-butene	0	/	9	0	–	no
1,1-Dichloroethane	0	/	9	0	–	no
1,2-Dichloroethane	0	/	9	0	–	no
1,1-Dichloroethylene	0	/	9	0	–	no
cis-1,2-Dichloroethene	0	/	2	0	–	no
trans-1,2-Dichloroethene	0	/	9	0	–	no
Dichloromethane	0	/	7	0	–	no
1,2-Dichloropropane	0	/	9	0	–	no
cis-1,3-Dichloropropene	0	/	9	0	–	no
trans-1,3-Dichloropropene	0	/	9	0	–	no
Ethyl methacrylate	0	/	9	0	–	no
Ethylbenzene	0	/	9	0	–	no
Iodomethane	0	/	9	0	–	no
m-Dichlorobenzene	0	/	9	0	–	no
Methyl n-butyl ketone	0	/	9	0	–	no
Methylbenzene	0	/	9	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	9	0	–	no
Nitrobenzene	0	/	9	0	–	no
Styrene (monomer)	0	/	9	0	–	no
Tetrachloroethene	0	/	9	0	–	no
1,1,2,2-Tetrachloroethane	0	/	9	0	–	no
1,1,1-Trichloroethane	0	/	9	0	–	no
1,1,2-Trichloroethane	0	/	9	0	–	no
1,2,3-Trichloropropane	0	/	9	0	–	no
1,2,4-Trichlorobenzene	0	/	9	0	–	no
Trichloroethylene	0	/	9	0	–	no
Vinyl acetate	0	/	9	0	–	no
Vinyl chloride	0	/	9	0	–	no
Xylenes	0	/	9	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	9	0	–	no
Acenaphthylene	0	/	7	0	–	no
Anthracene	0	/	9	0	–	no
1-Chloronaphthalene	0	/	2	0	–	no
2-Chloronaphthalene	0	/	9	0	–	no
Fluorene	0	/	9	0	–	no
2-Methylnaphthalene	0	/	2	0	–	no
Naphthalene	0	/	9	0	–	no
Phenanthrene	0	/	9	0	–	no

Notes:

– = Not applicable.

Max = Maximum concentration.

mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway. Lab contaminants were not retained as COPCs for the vapor inhalation pathway if they are the only detected VOCs in soil.

Table E.11-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	2	0	–	0.01	2.20E+02	n	–	–	–	no
Acrylonitrile	0	/	2	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	0	/	2	0	–	0.001	1.40E-02	c	–	–	–	no
Bromobenzene	0	/	2	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0	/	2	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0	/	2	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0	/	2	0	–	0.005	4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	2	0	–	0.005	NA	n	–	–	–	no
n-Butylbenzene	0	/	2	0	–	0.001	2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	2	0	–	0.001	2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	2	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	2	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	2	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	1	/	2	50	0.00151	0.001	1.80E-01	n	no	–	8.39E-03	no
CFC-12	0	/	2	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	2	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	2	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0	/	2	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	2	0	–	0.005	NA	n	–	–	–	no
Chloroform	1	/	2	50	0.00332	0.001	8.00E-02	c	no	4.15E-02	–	no
Chloromethane	0	/	2	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorotoluene	0	/	2	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0	/	2	0	–	0.001	NA	n	–	–	–	no
Cymene	0	/	2	0	–	0.001	NA	n	–	–	–	no
1,2-Dibromoethane	0	/	2	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0	/	2	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	2	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	2	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	2	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	0	/	2	0	–	0.001	2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0	/	2	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	1	/	2	50	0.00305	0.001	1.90E-01	n	no	–	1.61E-02	no
cis-1,2-Dichloroethene	0	/	2	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	2	0	–	0.001	1.80E-01	n	–	–	–	no
Dichloromethane	0	/	2	0	–	0.005	5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	2	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	2	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	2	0	–	0.001	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	2	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	2	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	2	0	–	0.001	NA	c	–	–	–	no
Ethylbenzene	0	/	2	0	–	0.001	7.00E-01	c	–	–	–	no
Iodomethane	0	/	2	0	–	0.005	NA	n	–	–	–	no
Isopropylbenzene	0	/	2	0	–	0.001	8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	2	0	–	0.001	8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	2	0	–	0.005	NA	n	–	–	–	no

Table E.11-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Methylbenzene	0	/	2	0	–	0.001	1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	2	0	–	0.005	1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	2	0	–	0.001	1.20E+02	c	–	–	–	no
n-Propylbenzene	0	/	2	0	–	0.001	3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	2	0	–	0.001	8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	2	0	–	0.001	1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	2	0	–	0.001	3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	2	0	–	0.001	3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	2	0	–	0.001	3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	2	0	–	0.001	4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	2	0	–	0.005	NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	2	0	–	0.001	2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	2	0	–	0.005	3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	2	0	–	0.001	2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	2	0	–	0.001	2.50E-02	n	–	–	–	no
Trichloroethylene	2	/	2	100	0.00406	–	5.00E-03	c	no	8.12E-01	–	no
Vinyl chloride	0	/	2	0	–	0.001	2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	2	0	–	0.001	2.30E+01	n	–	–	–	no
o-Xylene	0	/	2	0	–	0.001	3.30E+01	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Naphthalene	0	/	2	0	–	0.005	1.50E-01	c	–	–	–	no

Total Maximum / Screening Level Ratios	0.9	0.02
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	9.E-06	0.02

Target Organ Max/SL Ratios	
Kidney and Liver	0.02
Brain	NA
Nasal	NA
Eyes	NA
Skin	NA
Lungs	0.008
Gastrointestinal Tract and Forestomach	NA
Whole Body	0.008
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	NA
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Table E.11-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.11-HHRA-4
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	1.80E+01 m	–

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.11-HHRA-5
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (μg/kg)	Chemical
67641	1.80E+04	Acetone

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G45) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
16.7	15	305	0	305			SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SIL	1.55	0.440	0.26	0.0015					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.11-HHRA-6
Intercalculations
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	1.21E+05	1.65E+00	2.71E-03	4.20E+06	8.35E-05	1.01E+01

Table E.11-HHRA-7
Estimates of Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Acetone	1.80E+01	m	1.01E+01

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.
USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.
USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.
USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

$\mu g/m^3$ Micrograms per cubic meter.
mg/kg Milligrams per kilogram.
m Maximum.

[a] EPCs are presented in table Table E.11-HHRA-4.
[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.11-HHRA-8
Risk and Hazard Calculations for Hypothetical Current/Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	1.01E+01	m	NA	NA	–	3.1E+01	6.7E-05	100%
			Total ELCR	NA		Total HI	0.00007	100%

[a] From Table E.11-HHRA-7.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m^3	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	$\mu g/m^3$	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	NC	Not evaluated as a carcinogen.
HQ	Hazard quotient for non-cancer effects.	RfC	Reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.11-HHRA-9
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child and Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	1.01E+01	m	NA	NA	–	3.1E+01	3.1E-04	100%
			Total ELCR	NA		Total HI	0.0003	100%

[a] From Table E.11-HHRA-7.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	NC	Not evaluated as a carcinogen.
HQ	Hazard quotient for non-cancer effects.	RfC	Reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.11-HHRA-10
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 144 (SWMU 144)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Vapor Migration to Indoor Air	NC	0.00007
TOTAL SITE RISKS:	NC	0.00007
Hypothetical Future Child and Adult Resident Receptor		
Vapor Migration to Indoor Air	NC	0.0003
TOTAL SITE RISKS:	NC	0.0003

NC None of the COPCs are classified as carcinogens.

Table E.11.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	1	/	2	50	18	0.1		no	2.5	*R5*	7	**YES**	HQ > 1
Acrolein	0	/	2	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	2	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	2	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	2	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	2	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	2	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	2	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	2	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	2	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	2	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	2	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	2	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	2	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	2	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	2	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	2	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	2	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	2	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	2	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	2	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	2	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	2	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	2	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	2	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	2	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	2	0	–	0.005		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	2	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	2	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	2	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	2	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	2	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	2	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	2	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	2	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	2	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	2	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	2	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	2	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	2	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	2	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	2	0	–	0.02		no	3.36	*R5*	NA	no	ND

Table E.11.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,2,4-Trichlorobenzene	0	/	2	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	2	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	2	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	2	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	2	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	2	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	2	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	2	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	2	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	2	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	2	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	2	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	2	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	2	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	2	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	2	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	2	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	2	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	2	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	2	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	2	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	2	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	2	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	2	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	2	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	2	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	2	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	2	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	2	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	2	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	2	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	2	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	2	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	2	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	2	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	2	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	2	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	2	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	2	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	2	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	2	0	–	0.3		no	4.73	*R5*	NA	no	ND

Table E.11.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
2-Chloronaphthalene	0	/	2	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	2	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	2	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	2	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	1	/	2	50	80	13		no	10,000	*API*	0.008	no	HQ ≤ 1
Total Petroleum Hydrocarbons (TPH)	1	/	2	50	80	13		no	10,000	*API*	0.008	no	HQ ≤ 1
Explosives													
2,6-Dinitrotoluene	0	/	2	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	2	/	2	100	2.1	–		YES	18	*EcoSSL*	0.1	no	≤ BKGD
Barium	2	/	2	100	100	–		YES	330	*EcoSSL*	0.3	no	≤ BKGD
Cadmium	0	/	2	0	–	2.5	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	0	/	2	0	–	25	^	no	11	*EcoSSL*	NA	no	ND
Mercury	0	/	2	0	–	0.1		no	0.1	*R4*	NA	no	ND
Selenium	0	/	2	0	–	0.48		no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	2	0	–	5	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.11.ERA-2
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Volatile Organic Compounds								
Acetone	18	m	2.5	*R5*	7	**YES**	**HQ > 1**	no

Notes:
BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.12.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrolein	0	-	1	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromomethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
2-Butanone	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Carbon disulfide	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Carbon tetrachloride	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
CFC-11	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chlorodibromomethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloroethane	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroform	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloromethane	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Dibromomethane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4 Dichloro-2-butene	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1-Dichloroethylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Dichloromethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloropropane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
cis-1,3-Dichloropropene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Ethanol	0	-	1	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Iodomethane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.12.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	1	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	1	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.12.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4,6-Trichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Explosives													
2,6-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	1	-	1	100	0.53	-	0.53	–	-	–	HMW-09	0.53	–
Barium	0	-	1	0	–	-	–	93	-	93	–	46.5	–
Cadmium	0	-	1	0	–	-	–	2.3	-	2.3	–	1.15	–
Fluoride	1	-	1	100	1.1	-	1.1	–	-	–	HMW-09(3/21/1992)	1.1	–
Lead	0	-	1	0	–	-	–	23	-	23	–	11.5	–

Table E.12.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Mercury	0	-	1	0	–	-	–	0.08	-	0.08	–	0.04	–
Selenium	0	-	1	0	–	-	–	0.46	-	0.46	–	0.23	–
Silver	0	-	1	0	–	-	–	4.6	-	4.6	–	2.3	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.12.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	1	-	11	9.09	0.2	-	0.2	0.0231	-	0.1	HMW-09(3/24/1992)	0.0477	–	Y
Acrolein	0	-	11	0	–	-	–	0.00578	-	0.2	–	0.0562	–	Y
Acrylonitrile	0	-	11	0	–	-	–	0.0116	-	0.1	–	0.0307	–	Y
Benzene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Bis(2-chloroethyl)ether	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Bis(2-chloroisopropyl)ether	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Bromodichloromethane	0	-	5	0	–	-	–	0.00578	-	0.012	–	0.00373	–	Y
Bromomethane	0	-	11	0	–	-	–	0.005	-	0.024	–	0.00476	–	Y
2-Butanone	0	-	11	0	–	-	–	0.0231	-	0.1	–	0.0341	–	Y
Carbon disulfide	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Carbon tetrachloride	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
CFC-11	0	-	11	0	–	-	–	0.01	-	0.024	–	0.00613	–	Y
CFC-12	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Chlorobenzene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Chlorodibromomethane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	N
Chloroethane	0	-	11	0	–	-	–	0.01	-	0.024	–	0.00613	–	Y
2-Chloroethyl vinyl ether	0	-	11	0	–	-	–	0.01	-	0.024	–	0.00613	–	Y
Chloroform	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Chloromethane	0	-	11	0	–	-	–	0.01	-	0.024	–	0.00613	–	Y
2-Chlorophenol	0	-	11	0	–	-	–	0.33	-	0.445	–	0.184	–	Y
Dibenzofuran	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	Y
Dibromomethane	0	-	11	0	–	-	–	0.00578	-	0.02	–	0.00715	–	Y
1,2-Dichlorobenzene	0	-	11	0	–	-	–	0.00578	-	0.3	–	0.0835	–	Y
1,4-Dichlorobenzene	0	-	11	0	–	-	–	0.00578	-	0.3	–	0.0835	–	Y
1,4 Dichloro-2-butene	0	-	11	0	–	-	–	0.0116	-	0.024	–	0.00885	–	Y
1,1-Dichloroethane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
1,2-Dichloroethane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
1,1-Dichloroethylene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
cis-1,2-Dichloroethene	0	-	5	0	–	-	–	0.00578	-	0.012	–	0.00373	–	Y
trans-1,2-Dichloroethene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Dichloromethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
cis-1,3-Dichloropropene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
trans-1,3-Dichloropropene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Ethanol	0	-	6	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	11	0	–	-	–	0.00578	-	0.02	–	0.00715	–	Y

Table E.12.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Ethylbenzene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Iodomethane	0	-	11	0	–	-	–	0.0116	-	0.024	–	0.00885	–	Y
m-Dichlorobenzene	0	-	11	0	–	-	–	0.00578	-	0.3	–	0.0835	–	Y
Methyl n-butyl ketone	0	-	11	0	–	-	–	0.0231	-	0.05	–	0.0204	–	Y
Methylbenzene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	11	0	–	-	–	0.0231	-	0.05	–	0.0204	–	Y
Nitrobenzene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Styrene (monomer)	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Tetrachloroethene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
1,1,2,2-Tetrachloroethane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
1,1,1-Trichloroethane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
1,1,2-Trichloroethane	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
1,2,3-Trichloropropane	0	-	11	0	–	-	–	0.00578	-	0.02	–	0.00715	–	Y
1,2,4-Trichlorobenzene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Trichloroethylene	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Vinyl acetate	0	-	11	0	–	-	–	0.01	-	0.048	–	0.00951	–	Y
Vinyl chloride	0	-	11	0	–	-	–	0.01	-	0.024	–	0.00613	–	Y
Xylenes	0	-	11	0	–	-	–	0.005	-	0.012	–	0.00306	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	11	0	–	-	–	1.7	-	2.16	–	0.92	–	N
Benzoic acid	0	-	11	0	–	-	–	1.85	-	2.16	–	1	–	N
Benzyl alcohol	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	N
Benzyl butyl phthalate	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Bis(2-chloroethoxy)methane	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Bis(2-ethylhexyl)phthalate	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
4-Bromophenyl phenyl ether	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
p-Chloroaniline	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	N
4-Chloro-3-methylphenol	0	-	11	0	–	-	–	0.382	-	0.7	–	0.285	–	N
4-Chlorophenyl phenyl ether	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
3,3'-Dichlorobenzidine	0	-	11	0	–	-	–	0.382	-	0.7	–	0.285	–	N
2,4-Dichlorophenol	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Diethyl phthalate	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
2,4-Dimethylphenol	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
2,4-Dinitrophenol	0	-	11	0	–	-	–	1.85	-	2.16	–	1	–	N
2,4-Dinitrotoluene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
1,2-Diphenylhydrazine	0	-	5	0	–	-	–	1.85	-	2.16	–	1	–	N
Dimethyl phthalate	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Di-n-butyl phthalate	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N

Table E.12.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Di-n-octyl phthalate	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Diphenylamine	0	-	5	0	–	-	–	1.16	-	1.35	–	0.627	–	N
Hexachloro-1,3-butadiene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Hexachlorobenzene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Hexachlorocyclopentadiene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Hexachloroethane	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Methanamine, n-methyl-n-nitroso	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–	N
2-Methyl-4,6-dinitrophenol	0	-	11	0	–	-	–	1.85	-	2.16	–	1	–	N
2-Methylphenol	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	N
4-Methylphenol	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	N
2-Nitroaniline	0	-	5	0	–	-	–	1.85	-	2.16	–	1	–	N
3-Nitroaniline	0	-	5	0	–	-	–	1.85	-	2.16	–	1	–	N
p-Nitroaniline	0	-	5	0	–	-	–	1.85	-	2.16	–	1	–	N
2-Nitrophenol	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
4-Nitrophenol	0	-	11	0	–	-	–	1.85	-	2.16	–	1	–	N
n-Nitrosodi-n-propylamine	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
n-Nitrosodiphenylamine	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Pentachlorophenol	0	-	11	0	–	-	–	1.85	-	2.16	–	1	–	N
Phenol	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Tribromomethane	0	-	5	0	–	-	–	0.00578	-	0.012	–	0.00373	–	N
2,4,5-Trichlorophenol	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	N
2,4,6-Trichlorophenol	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Acenaphthylene	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–	Y
Anthracene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Benzo(a)anthracene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Benzo(a)pyrene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Benzo(b)fluoranthene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Benzo(g,h,i)perylene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Benzo(k)fluoranthene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
1,2-Benzphenanthracene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
1-Chloronaphthalene	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	Y
2-Chloronaphthalene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Dibenz(a,h)anthracene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Fluoranthene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Fluorene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y

Table E.12.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Indeno(1,2,3-cd)pyrene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
2-Methylnaphthalene	0	-	5	0	–	-	–	0.382	-	0.445	–	0.207	–	Y
Naphthalene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Phenanthrene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	Y
Pyrene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Total Petroleum Hydrocarbons (TPH)														
Petroleum hydrocarbons	0	-	6	0	–	-	–	12	-	14	–	6.5	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	11	0	–	-	–	12	-	40.4	–	12.1	–	N
Explosives														
2,6-Dinitrotoluene	0	-	11	0	–	-	–	0.3	-	0.445	–	0.176	–	N
Inorganics														
Arsenic	8	-	11	72.7	0.53	-	14.8	2.89	-	3.37	HMW-46(11/6/1993)	3.47	9.038	N
Barium	8	-	11	72.7	23	-	140	41	-	110	HMW-09(3/24/1992)	59.1	81.68	N
Cadmium	0	-	11	0	–	-	–	0.48	-	2.7	–	0.652	–	N
Chromium	4	-	5	80	8.24	-	11.6	6.76	-	6.76	HMW-44(11/18/1993),HMW-45(11/21/1993)	9.08	–	N
Fluoride	9	-	11	81.8	0.0578	-	2.96	0.0481	-	0.391	HMW-46(11/6/1993)	1.16	1.7	N
Lead	6	-	11	54.5	4.05	-	6.98	4.8	-	27	HMW-45(11/21/1993)	6.68	6.513	N
Mercury	0	-	11	0	–	-	–	0.0231	-	10	–	0.48	–	N
Selenium	0	-	11	0	–	-	–	0.46	-	3.37	–	0.845	–	N
Silver	3	-	11	27.3	6.54	-	11.9	0.95	-	6.76	HMW-45(11/21/1993)	3.78	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.12.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min - Max (mg/L)		Min - Max (mg/L)					
Volatile Organic Compounds										
Acetone	0 - 2	0	– -	–	0.01 -	0.01	–	0.005	–	Y
Acrylonitrile	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Benzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Bromobenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Bromodichloromethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Bromomethane	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
2-Butanone	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
n-Butylbenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
sec-Butylbenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
tert-Butylbenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Carbon disulfide	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Carbon tetrachloride	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
CFC-11	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
CFC-12	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Chlorobenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Chlorobromomethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Chlorodibromomethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	N
Chloroethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Chloroform	2 - 2	100	0.00712 -	0.0104	– -	–	HMW-45	0.00876	–	Y
Chloromethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
2-Chlorotoluene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
4-Chlorotoluene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Cymene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	N
1,2-Dibromoethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Dibromomethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
1,4-Dichlorobenzene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
trans-1,4-Dichlorobutene	0 - 2	0	– -	–	0.01 -	0.01	–	0.005	–	Y
1,1-Dichloroethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
1,2-Dichloroethane	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0 - 2	0	– -	–	0.001 -	0.001	–	0.0005	–	Y
Dichloromethane	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	Y

Table E.12.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	1	-	2	50	0.0622	-	0.0622	0.005	-	0.005	HMW-45	0.0324	–	N
Isopropylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Methyl n-butyl ketone	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
n-Propylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Vinyl chloride	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
1,4-Dioxane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachloro-1,3-butadiene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Tribromomethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Polycyclic Aromatic Hydrocarbons														
Naphthalene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Inorganics														
Chromium	2	-	2	100	0.011	-	0.011	–	-	–	HMW-09,HMW-45	0.011	–	N

Table E.12.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Fluoride	2	-	2	100	2.57	-	3.31	–	-	–	HMW-45	2.94	–	N
Nitrate	2	-	2	100	55.4	-	92.4	–	-	–	HMW-45	73.9	–	N
Silver	0	-	2	0	–	-	–	0.002	-	0.002	–	0.001	–	N
Sulfate	2	-	2	100	4240	-	5320	–	-	–	HMW-09	4780	–	N
Zinc	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Other														
Bromide	0	-	2	0	–	-	–	1	-	1	–	0.5	–	N
Chloride	2	-	2	100	1080	-	2320	–	-	–	HMW-45	1700	–	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.12-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	0	/	1	0	–	0.1	–	2.63E+05	n	–	–	–	no
Acrolein	0	/	1	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	1	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	1	0	–	0.005	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	1	0	–	0.3	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.3	–	3.10E+03	c	–	–	–	no
Bromomethane	0	/	1	0	–	0.005	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	1	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	1	0	–	0.005	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	1	0	–	0.005	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	1	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	1	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	1	0	–	0.005	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	1	0	–	0.005	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	1	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	1	0	–	0.01	–	NA	n	–	–	–	no
Chloroform	0	/	1	0	–	0.005	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	1	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	1	0	–	0.33	–	1.55E+03	n	–	–	–	no
Dibromomethane	0	/	1	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	1	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	1	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	1	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	1	0	–	0.005	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	1	0	–	0.005	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	1	0	–	0.005	–	1.83E+03	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	1	0	–	0.005	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	1	0	–	0.005	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	1	0	–	0.005	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	1	0	–	0.005	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	1	0	–	0.005	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	1	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	1	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	1	0	–	0.005	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	1	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	1	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	1	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	1	0	–	0.005	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	1	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	1	0	–	0.3	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	1	0	–	0.005	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	1	0	–	0.005	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	1	0	–	0.005	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	1	0	–	0.005	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	1	0	–	0.005	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	1	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	1	0	–	0.3	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	1	0	–	0.005	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	1	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	1	0	–	0.01	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	1	0	–	0.005	–	3.13E+03	n	–	–	–	no

Table E.12-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Semi Volatile Organic Compounds												
Benzidine	0	/ 1	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/ 1	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl butyl phthalate	0	/ 1	0	–	0.3	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/ 1	0	–	0.3	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/ 1	0	–	0.3	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	/ 1	0	–	0.3	–	NA	n	–	–	–	no
4-Chloro-3-methylphenol	0	/ 1	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/ 1	0	–	0.3	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/ 1	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/ 1	0	–	0.3	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/ 1	0	–	0.3	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/ 1	0	–	0.3	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/ 1	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/ 1	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/ 1	0	–	0.3	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/ 1	0	–	0.3	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/ 1	0	–	0.3	–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/ 1	0	–	0.3	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/ 1	0	–	0.3	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/ 1	0	–	0.3	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/ 1	0	–	0.3	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/ 1	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/ 1	0	–	2	–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/ 1	0	–	0.3	–	NA	n	–	–	–	no
4-Nitrophenol	0	/ 1	0	–	2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/ 1	0	–	0.3	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/ 1	0	–	0.3	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/ 1	0	–	2	–	1.03E+03	c	–	–	–	no
Phenol	0	/ 1	0	–	0.3	–	6.88E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/ 1	0	–	0.3	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/ 1	0	–	0.3	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/ 1	0	–	0.3	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/ 1	0	–	0.33	–	1.34E+04	n	–	–	–	no
Anthracene	0	/ 1	0	–	0.3	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/ 1	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/ 1	0	–	0.3	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/ 1	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/ 1	0	–	0.3	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/ 1	0	–	0.3	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/ 1	0	–	0.3	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/ 1	0	–	0.3	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/ 1	0	–	0.3	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/ 1	0	–	0.3	–	8.91E+03	n	–	–	–	no
Fluorene	0	/ 1	0	–	0.3	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/ 1	0	–	0.3	–	2.13E+02	c	–	–	–	no
Naphthalene	0	/ 1	0	–	0.3	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/ 1	0	–	0.3	–	7.15E+03	n	–	–	–	no
Pyrene	0	/ 1	0	–	0.3	–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)												
Petroleum hydrocarbons	0	/ 1	0	–	13	–	NA	n	–	–	–	no

Table E.12-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Total Petroleum Hydrocarbons (TPH)	0	/	1	0	–	13	–	NA	n	–	–	–	no
Explosives													
2,6-Dinitrotoluene	0	/	1	0	–	0.3	–	2.39E+02	n	–	–	–	no
Inorganics													
Arsenic	1	/	1	100	0.53	–	YES	6.54E+01	n	no	–	8.10E-03	no
Barium	0	/	1	0	–	93	no	4.35E+03	n	–	–	–	no
Cadmium	0	/	1	0	–	2.3	no	3.09E+02	n	–	–	–	no
Fluoride	1	/	1	100	1.1	–	no	1.86E+04	n	no	–	5.92E-05	no
Lead	0	/	1	0	–	23	YES	8.00E+02	IEUBK	–	–	–	no
Mercury	0	/	1	0	–	0.08	no	6.36E+01	n	–	–	–	no
Selenium	0	/	1	0	–	0.46	no	1.55E+03	n	–	–	–	no
Silver	0	/	1	0	–	4.6	no	1.55E+03	n	–	–	–	no
Total Maximum / Screening Level Ratios											NA	0.008	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											NA	0.008	

Target Organ Max/SL Ratios	
Kidney & Liver	NA
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.008
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	0.00006
Red Blood Cells	NA
Glands	NA
Fetus	NA
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.

Table E.12-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction

[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.12-HHRA-2
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	1	/	11	9	0.2	no
Acrolein	0	/	11	0	–	no
Acrylonitrile	0	/	11	0	–	no
Benzene	0	/	11	0	–	no
Bis(2-chloroethyl)ether	0	/	11	0	–	no
Bis(2-chloroisopropyl)ether	0	/	11	0	–	no
Bromodichloromethane	0	/	5	0	–	no
Bromomethane	0	/	11	0	–	no
2-Butanone	0	/	11	0	–	no
Carbon disulfide	0	/	11	0	–	no
Carbon tetrachloride	0	/	11	0	–	no
CFC-11	0	/	11	0	–	no
CFC-12	0	/	6	0	–	no
Chlorobenzene	0	/	11	0	–	no
Chloroethane	0	/	11	0	–	no
2-Chloroethyl vinyl ether	0	/	11	0	–	no
Chloroform	0	/	11	0	–	no
Chloromethane	0	/	11	0	–	no
2-Chlorophenol	0	/	11	0	–	no
Dibenzofuran	0	/	5	0	–	no
Dibromomethane	0	/	11	0	–	no
1,2-Dichlorobenzene	0	/	11	0	–	no
1,4-Dichlorobenzene	0	/	11	0	–	no
1,4 Dichloro-2-butene	0	/	11	0	–	no
1,1-Dichloroethane	0	/	11	0	–	no
1,2-Dichloroethane	0	/	11	0	–	no
1,1-Dichloroethylene	0	/	11	0	–	no
cis-1,2-Dichloroethene	0	/	5	0	–	no
trans-1,2-Dichloroethene	0	/	11	0	–	no
Dichloromethane	0	/	6	0	–	no
1,2-Dichloropropane	0	/	11	0	–	no
cis-1,3-Dichloropropene	0	/	11	0	–	no
trans-1,3-Dichloropropene	0	/	11	0	–	no
Ethyl methacrylate	0	/	11	0	–	no
Ethylbenzene	0	/	11	0	–	no
Iodomethane	0	/	11	0	–	no
m-Dichlorobenzene	0	/	11	0	–	no
Methyl n-butyl ketone	0	/	11	0	–	no
Methylbenzene	0	/	11	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	11	0	–	no
Nitrobenzene	0	/	11	0	–	no
Styrene (monomer)	0	/	11	0	–	no
Tetrachloroethene	0	/	11	0	–	no
1,1,2,2-Tetrachloroethane	0	/	11	0	–	no
1,1,1-Trichloroethane	0	/	11	0	–	no
1,1,2-Trichloroethane	0	/	11	0	–	no
1,2,3-Trichloropropane	0	/	11	0	–	no
1,2,4-Trichlorobenzene	0	/	11	0	–	no
Trichloroethylene	0	/	11	0	–	no
Vinyl acetate	0	/	11	0	–	no
Vinyl chloride	0	/	11	0	–	no
Xylenes	0	/	11	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	11	0	–	no
Acenaphthylene	0	/	6	0	–	no
Anthracene	0	/	11	0	–	no
1-Chloronaphthalene	0	/	5	0	–	no
2-Chloronaphthalene	0	/	11	0	–	no
Fluorene	0	/	11	0	–	no
2-Methylnaphthalene	0	/	5	0	–	no
Naphthalene	0	/	11	0	–	no
Phenanthrene	0	/	11	0	–	no

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway. Lab contaminants were not retained as COPCs for the vapor inhalation pathway if they are the only detected VOCs in soil.

Table E.12-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	2	0	–	0.01	2.20E+02	n	–	–	–	no
Acrylonitrile	0	/	2	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	0	/	2	0	–	0.001	1.40E-02	c	–	–	–	no
Bromobenzene	0	/	2	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0	/	2	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0	/	2	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0	/	2	0	–	0.005	4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	2	0	–	0.005	NA	n	–	–	–	no
n-Butylbenzene	0	/	2	0	–	0.001	2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	2	0	–	0.001	2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	2	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	2	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	2	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	0	/	2	0	–	0.001	1.80E-01	n	–	–	–	no
CFC-12	0	/	2	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	2	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	2	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0	/	2	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	2	0	–	0.005	NA	n	–	–	–	no
Chloroform	2	/	2	100	0.0104	–	8.00E-02	c	no	1.30E-01	–	no
Chloromethane	0	/	2	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorotoluene	0	/	2	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0	/	2	0	–	0.001	NA	n	–	–	–	no
Cymene	0	/	2	0	–	0.001	NA	n	–	–	–	no
1,2-Dibromoethane	0	/	2	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0	/	2	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	2	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	2	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	2	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	0	/	2	0	–	0.001	2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0	/	2	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0	/	2	0	–	0.001	1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	2	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	2	0	–	0.001	1.80E-01	n	–	–	–	no
Dichloromethane	0	/	2	0	–	0.005	5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	2	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	2	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	2	0	–	0.001	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	2	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	2	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	2	0	–	0.001	NA	c	–	–	–	no
Ethylbenzene	0	/	2	0	–	0.001	7.00E-01	c	–	–	–	no
Iodomethane	0	/	2	0	–	0.005	NA	n	–	–	–	no
Isopropylbenzene	0	/	2	0	–	0.001	8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	2	0	–	0.001	8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	2	0	–	0.005	NA	n	–	–	–	no

Table E.12-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Methylbenzene	0	/	2	0	–	0.001	1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	2	0	–	0.005	1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	2	0	–	0.001	1.20E+02	c	–	–	–	no
n-Propylbenzene	0	/	2	0	–	0.001	3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	2	0	–	0.001	8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	2	0	–	0.001	1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	2	0	–	0.001	3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	2	0	–	0.001	3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	2	0	–	0.001	3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	2	0	–	0.001	4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	2	0	–	0.005	NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	2	0	–	0.001	2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	2	0	–	0.005	3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	2	0	–	0.001	2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	2	0	–	0.001	2.50E-02	n	–	–	–	no
Trichloroethylene	0	/	2	0	–	0.001	5.00E-03	c	–	–	–	no
Vinyl chloride	0	/	2	0	–	0.001	2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	2	0	–	0.001	2.30E+01	n	–	–	–	no
o-Xylene	0	/	2	0	–	0.001	3.30E+01	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Naphthalene	0	/	2	0	–	0.005	1.50E-01	c	–	–	–	no

	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios	0.1	NA
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	1.0E-06	NA

Target Organ Max/SL Ratios	
Kidney & Liver	NA
Brain	NA
Nasal	NA
Eyes	NA
Skin	NA
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	NA
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Table E.12-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 145 (SWMU 145)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]

Notes:

– =	Not applicable.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1×10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.12.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	0	/	1	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	1	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	1	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	1	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	1	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	1	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	1	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	1	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	1	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	1	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	1	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	1	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	1	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	1	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	1	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	1	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	1	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	1	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	1	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	1	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	1	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	1	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	1	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	1	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	1	0	–	0.005		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	1	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	1	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	1	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	1	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	1	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	1	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	1	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	1	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	1	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	1	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	1	0	–	0.005		no	9.92	*R5*	NA	no	ND

Table E.12.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,1,2,2-Tetrachloroethane	0	/	1	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	1	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	1	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	1	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	1	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	1	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	1	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	1	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	1	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	1	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	1	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	1	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	1	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	1	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	1	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	1	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	1	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	1	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	1	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	1	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	1	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	1	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	1	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	1	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	1	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	1	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	1	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	1	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	1	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND

Table E.12.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Acenaphthylene	0	/	1	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	1	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	1	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	1	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	1	0	–	0.3		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	1	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	1	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	1	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	1	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	1	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	1	/	1	100	0.53	–		YES	18	*EcoSSL*	0.03	no	≤ BKGD
Barium	0	/	1	0	–	93		no	330	*EcoSSL*	NA	no	ND
Cadmium	0	/	1	0	–	2.3	^	no	0.36	*EcoSSL*	NA	no	ND
Fluoride	1	/	1	100	1.1	–		no	30	*ORNL*	0.04	no	HQ ≤ 1
Lead	0	/	1	0	–	23	^	YES	11	*EcoSSL*	NA	no	ND
Mercury	0	/	1	0	–	0.08		no	0.1	*R4*	NA	no	ND
Selenium	0	/	1	0	–	0.46		no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	1	0	–	4.6	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.13.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	5	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrylonitrile	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Benzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromodichloromethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromomethane	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
2-Butanone	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
tert-Butyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–
n-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
sec-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
tert-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon disulfide	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon tetrachloride	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-11	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorobromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorodibromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Chloroform	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloromethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorotoluene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Chlorotoluene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Cymene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dibromoethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Dibromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dichlorobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,4-Dichlorobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,4-Dichlorobutene	0	-	5	0	–	-	–	0.1	-	0.1	–	0.05	–
1,1-Dichloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dichloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloroethylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,2-Dichloroethene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,2-Dichloroethene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.13.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Dichloromethane	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
2,2-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloropropene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,3-Dichloropropene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,3-Dichloropropene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Ethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Iodomethane	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Isopropyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–
Isopropylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
m-Dichlorobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Methyl n-butyl ketone	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Methyl-2-pentanone (MIBK)	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Methyl tert-butyl ether (MTBE)	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
n-Propylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Styrene (monomer)	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Tetrachloroethene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,1,2-Tetrachloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2,2-Tetrachloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,1-Trichloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2-Trichloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2,3-Trichlorobenzene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2,4-Trichlorobenzene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,4-Trimethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3,5-Trimethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Trichloroethylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
m,p-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
o-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Semi Volatile Organic Compounds													
Benzyl alcohol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–
2-Butoxy ethanol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–
1,4-Dioxane	0	-	5	0	–	-	–	0.5	-	0.5	–	0.25	–
Hexachloro-1,3-butadiene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Tribromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.13.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Polycyclic Aromatic Hydrocarbons													
Naphthalene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	-	5	0	–	-	–	50	-	50	–	25	–
Gasoline Range Organics (GRO)	0	-	5	0	–	-	–	1	-	1	–	0.5	–
Inorganics													
Arsenic	1	-	5	20	2.68	-	2.68	2	-	2	HLSF-SB-035	1.34	–
Barium	5	-	5	100	26.3	-	48.6	–	-	–	HLSF-SB-035	38.5	–
Cadmium	1	-	5	20	0.134	-	0.134	0.1	-	0.1	HLSF-SB-033	0.0668	–
Chromium	5	-	5	100	2.21	-	3.93	–	-	–	HLSF-SB-035	3.18	–
Chromium (Hexavalent)	0	-	5	0	–	-	–	0.4	-	0.4	–	0.2	–
Lead	2	-	5	40	2.73	-	4.69	1	-	1	HLSF-SB-032	1.78	–
Mercury	0	-	5	0	–	-	–	0.04	-	0.04	–	0.02	–
Phosphorus	5	-	5	100	67.7	-	120	–	-	–	HLSF-SB-035	93.3	–
Potassium	5	-	5	100	407	-	915	–	-	–	HLSF-SB-036	623	–
Selenium	0	-	5	0	–	-	–	1	-	1	–	0.5	–
Silver	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
Sodium	5	-	5	100	203	-	332	–	-	–	HLSF-SB-033	249	–
Zinc	5	-	5	100	4.55	-	8.72	–	-	–	HLSF-SB-032	6.97	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.13.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	10	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrolein	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	10	0	–	-	–	0.01	-	0.1	–	0.0275	–
Benzene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Bis(2-chloroethyl)ether	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromodichloromethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromomethane	0	-	10	0	–	-	–	0.005	-	0.05	–	0.0138	–
2-Butanone	0	-	10	0	–	-	–	0.05	-	0.1	–	0.0375	–
tert-Butyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–
n-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
sec-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
tert-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon disulfide	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Carbon tetrachloride	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
CFC-11	0	-	10	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	10	0	–	-	–	0.01	-	0.02	–	0.0075	–
Chlorobenzene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Chlorobromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorodibromomethane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Chloroethane	0	-	10	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	10	0	–	-	–	0.01	-	0.05	–	0.015	–
Chloroform	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Chloromethane	0	-	10	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	5	0	–	-	–	0.0003	-	0.33	–	0.0331	–
2-Chlorotoluene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Chlorotoluene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Cymene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dibromoethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Dibromomethane	0	-	10	0	–	-	–	0.01	-	0.02	–	0.0075	–
1,2-Dichlorobenzene	0	-	10	0	–	-	–	0.01	-	0.3	–	0.0775	–
1,4-Dichlorobenzene	0	-	10	0	–	-	–	0.01	-	0.3	–	0.0775	–
1,4 Dichloro-2-butene	0	-	5	0	–	-	–	0.02	-	0.02	–	0.01	–
trans-1,4-Dichlorobutene	0	-	5	0	–	-	–	0.1	-	0.1	–	0.05	–

Table E.13.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
1,1-Dichloroethane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,2-Dichloroethane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,1-Dichloroethylene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
cis-1,2-Dichloroethene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,2-Dichloroethene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Dichloromethane	0	-	10	0	–	-	–	0.005	-	0.05	–	0.0138	–
1,2-Dichloropropane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,3-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
2,2-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloropropene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,3-Dichloropropene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
trans-1,3-Dichloropropene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Ethanol	0	-	5	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	5	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Iodomethane	0	-	10	0	–	-	–	0.02	-	0.05	–	0.0175	–
Isopropyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–
Isopropylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
m-Dichlorobenzene	0	-	10	0	–	-	–	0.01	-	0.3	–	0.0775	–
Methyl n-butyl ketone	0	-	10	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
4-Methyl-2-pentanone (MIBK)	0	-	10	0	–	-	–	0.05	-	0.05	–	0.025	–
Methyl tert-butyl ether (MTBE)	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Nitrobenzene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Propylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Styrene (monomer)	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Tetrachloroethene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,1,1,2-Tetrachloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2,2-Tetrachloroethane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,1,1-Trichloroethane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,1,2-Trichloroethane	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,2,3-Trichlorobenzene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	10	0	–	-	–	0.01	-	0.02	–	0.0075	–
1,2,4-Trichlorobenzene	0	-	10	0	–	-	–	0.05	-	0.3	–	0.0875	–
1,2,4-Trimethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3,5-Trimethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Trichloroethylene	0	-	10	0	–	-	–	0.005	-	0.01	–	0.00375	–
Vinyl acetate	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.13.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Vinyl chloride	0	-	10	0	–	-	–	0.01	-	0.01	–	0.005	–
m,p-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
o-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	5	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	5	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	5	0	–	-	–	2	-	2	–	1	–
Benzyl alcohol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–
Benzyl butyl phthalate	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Butoxy ethanol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–
4-Chloro-3-methylphenol	0	-	5	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	5	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	5	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4-Dioxane	0	-	5	0	–	-	–	0.5	-	0.5	–	0.25	–
Hexachloro-1,3-butadiene	0	-	10	0	–	-	–	0.05	-	0.3	–	0.0875	–
Hexachlorobenzene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	5	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	5	0	–	-	–	0.0017	-	2	–	0.201	–
2-Nitrophenol	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	5	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	5	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Tribromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.13.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2,4,6-Trichlorophenol	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	5	0	–	-	–	0.0003	-	0.33	–	0.0331	–
Anthracene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	10	0	–	-	–	0.05	-	0.3	–	0.0875	–
Phenanthrene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	-	5	0	–	-	–	50	-	50	–	25	–
Gasoline Range Organics (GRO)	0	-	5	0	–	-	–	1	-	1	–	0.5	–
Petroleum hydrocarbons	0	-	5	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	5	0	–	-	–	13	-	13	–	6.5	–
Explosives													
2,6-Dinitrotoluene	0	-	5	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	6	-	10	60	0.5	-	2.68	2	-	2	HLSF-SB-035(9/28/2006)	1.04	1.347
Barium	5	-	10	50	26.3	-	48.6	88	-	100	HLSF-SB-035(9/28/2006)	43.1	46.07
Cadmium	1	-	10	10	0.134	-	0.134	0.1	-	2.6	HLSF-SB-033(9/28/2006)	0.638	–
Chromium	5	-	5	100	2.21	-	3.93	–	-	–	HLSF-SB-035(9/28/2006)	3.18	–
Chromium (Hexavalent)	0	-	5	0	–	-	–	0.4	-	0.4	–	0.2	–
Lead	2	-	10	20	2.73	-	4.69	1	-	26	HLSF-SB-032(9/28/2006)	6.94	–
Mercury	0	-	10	0	–	-	–	0.04	-	0.1	–	0.035	–
Phosphorus	5	-	5	100	67.7	-	120	–	-	–	HLSF-SB-035(9/28/2006)	93.3	–
Potassium	5	-	5	100	407	-	915	–	-	–	HLSF-SB-036(9/28/2006)	623	–
Selenium	1	-	10	10	2.2	-	2.2	0.47	-	1	146S2(2/16/1992)	0.569	–

Table E.13.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Silver	0	-	10	0	–	-	–	0.05	-	5.2	–	1.22	–
Sodium	5	-	5	100	203	-	332	–	-	–	HLSF-SB-033(9/28/2006)	249	–
Zinc	5	-	5	100	4.55	-	8.72	–	-	–	HLSF-SB-032(9/28/2006)	6.97	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.13.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min - Max (mg/kg)		Min - Max (mg/kg)					
Volatile Organic Compounds										
Acetone	0 - 23	0	– - –		0.0232 - 0.1		–	0.0467	–	Y
Acrolein	0 - 9	0	– - –		0.00579 - 0.2		–	0.0784	–	Y
Acrylonitrile	0 - 23	0	– - –		0.01 - 0.1		–	0.0188	–	Y
Benzene	0 - 23	0	– - –		0.005 - 0.01		–	0.00407	–	Y
Bis(2-chloroethyl)ether	0 - 8	0	– - –		0.3 - 0.382		–	0.155	–	Y
Bis(2-chloroisopropyl)ether	0 - 8	0	– - –		0.3 - 0.382		–	0.155	–	Y
Bromobenzene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
Bromodichloromethane	0 - 16	0	– - –		0.00579 - 0.01		–	0.00475	–	Y
Bromomethane	0 - 23	0	– - –		0.005 - 0.05		–	0.0165	–	Y
2-Butanone	0 - 23	0	– - –		0.0232 - 0.1		–	0.0315	–	Y
tert-Butyl alcohol	0 - 14	0	– - –		0.2 - 0.2		–	0.1	–	Y
n-Butylbenzene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
sec-Butylbenzene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
tert-Butylbenzene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
Carbon disulfide	0 - 23	0	– - –		0.005 - 0.01		–	0.00407	–	Y
Carbon tetrachloride	0 - 23	0	– - –		0.005 - 0.01		–	0.00407	–	Y
CFC-11	0 - 23	0	– - –		0.01 - 0.0125		–	0.00509	–	Y
CFC-12	0 - 21	0	– - –		0.01 - 0.02		–	0.00667	–	Y
Chlorobenzene	0 - 23	0	– - –		0.005 - 0.01		–	0.00407	–	Y
Chlorobromomethane	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
Chlorodibromomethane	0 - 23	0	– - –		0.005 - 0.01		–	0.00407	–	N
Chloroethane	0 - 23	0	– - –		0.01 - 0.0125		–	0.00509	–	Y
2-Chloroethyl vinyl ether	0 - 23	0	– - –		0.01 - 0.05		–	0.0173	–	Y
Chloroform	0 - 23	0	– - –		0.005 - 0.01		–	0.00407	–	Y
Chloromethane	0 - 23	0	– - –		0.01 - 0.0125		–	0.00509	–	Y
2-Chlorophenol	0 - 8	0	– - –		0.0003 - 0.382		–	0.0858	–	Y
2-Chlorotoluene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
4-Chlorotoluene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
Cymene	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
Dibenzofuran	0 - 1	0	– - –		0.382 - 0.382		–	0.191	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0 - 14	0	– - –		0.05 - 0.05		–	0.025	–	N
1,2-Dibromoethane	0 - 14	0	– - –		0.01 - 0.01		–	0.005	–	Y
Dibromomethane	0 - 23	0	– - –		0.00579 - 0.02		–	0.00635	–	Y
1,2-Dichlorobenzene	0 - 23	0	– - –		0.00579 - 0.3		–	0.049	–	Y
1,4-Dichlorobenzene	0 - 23	0	– - –		0.00579 - 0.3		–	0.049	–	Y
1,4 Dichloro-2-butene	0 - 9	0	– - –		0.0116 - 0.02		–	0.00912	–	Y

Table E.13.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
trans-1,4-Dichlorobutene	0	-	14	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
1,1-Dichloroethane	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,2-Dichloroethane	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,1-Dichloroethylene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
cis-1,2-Dichloroethene	0	-	16	0	–	-	–	0.00579	-	0.01	–	0.00475	–	Y
trans-1,2-Dichloroethene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
Dichloromethane	0	-	21	0	–	-	–	0.005	-	0.05	–	0.0175	–	Y
1,2-Dichloropropane	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,3-Dichloropropane	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2,2-Dichloropropane	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloropropene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
cis-1,3-Dichloropropene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
trans-1,3-Dichloropropene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
Ethanol	0	-	7	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	9	0	–	-	–	0.00579	-	0.02	–	0.00845	–	Y
Ethylbenzene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
Iodomethane	0	-	23	0	–	-	–	0.0116	-	0.05	–	0.0188	–	Y
Isopropyl alcohol	0	-	14	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Isopropylbenzene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m-Dichlorobenzene	0	-	23	0	–	-	–	0.00579	-	0.3	–	0.049	–	Y
Methyl n-butyl ketone	0	-	23	0	–	-	–	0.0232	-	0.05	–	0.0239	–	Y
Methylbenzene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	23	0	–	-	–	0.0232	-	0.05	–	0.0239	–	Y
Methyl tert-butyl ether (MTBE)	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Nitrobenzene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	Y
n-Propylbenzene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Styrene (monomer)	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
Tetrachloroethene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,1,1,2-Tetrachloroethane	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,2,2-Tetrachloroethane	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,1,1-Trichloroethane	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,1,2-Trichloroethane	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y
1,2,3-Trichlorobenzene	0	-	14	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,3-Trichloropropane	0	-	23	0	–	-	–	0.00579	-	0.02	–	0.00635	–	Y
1,2,4-Trichlorobenzene	0	-	22	0	–	-	–	0.05	-	0.382	–	0.0723	–	Y
1,2,4-Trimethylbenzene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,3,5-Trimethylbenzene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Trichloroethylene	0	-	23	0	–	-	–	0.005	-	0.01	–	0.00407	–	Y

Table E.13.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Vinyl acetate	0	-	9	0	–	-	–	0.01	-	0.0251	–	0.00657	–	Y
Vinyl chloride	0	-	23	0	–	-	–	0.01	-	0.0125	–	0.00509	–	Y
m,p-Xylene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
o-Xylene	0	-	14	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	9	0	–	-	–	0.005	-	0.00627	–	0.00261	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	8	0	–	-	–	1.7	-	1.85	–	0.859	–	N
Benzoic acid	0	-	8	0	–	-	–	1.85	-	2	–	0.991	–	N
Benzyl alcohol	0	-	15	0	–	-	–	0.25	-	0.382	–	0.129	–	N
Benzyl butyl phthalate	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Bis(2-chloroethoxy)methane	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Bis(2-ethylhexyl)phthalate	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
4-Bromophenyl phenyl ether	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
2-Butoxy ethanol	0	-	14	0	–	-	–	0.25	-	0.25	–	0.125	–	N
p-Chloroaniline	0	-	1	0	–	-	–	0.382	-	0.382	–	0.191	–	N
4-Chloro-3-methylphenol	0	-	8	0	–	-	–	0.382	-	0.7	–	0.33	–	N
4-Chlorophenyl phenyl ether	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
3,3'-Dichlorobenzidine	0	-	8	0	–	-	–	0.382	-	0.7	–	0.33	–	N
2,4-Dichlorophenol	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Diethyl phthalate	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
2,4-Dimethylphenol	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
2,4-Dinitrophenol	0	-	8	0	–	-	–	1.85	-	2	–	0.991	–	N
2,4-Dinitrotoluene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
1,2-Diphenylhydrazine	0	-	1	0	–	-	–	1.85	-	1.85	–	0.925	–	N
Dimethyl phthalate	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Di-n-butyl phthalate	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Di-n-octyl phthalate	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
1,4-Dioxane	0	-	14	0	–	-	–	0.5	-	0.5	–	0.25	–	N
Diphenylamine	0	-	1	0	–	-	–	1.16	-	1.16	–	0.58	–	N
Hexachloro-1,3-butadiene	0	-	22	0	–	-	–	0.05	-	0.382	–	0.0723	–	N
Hexachlorobenzene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Hexachlorocyclopentadiene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Hexachloroethane	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Methanamine, n-methyl-n-nitroso	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–	N
2-Methyl-4,6-dinitrophenol	0	-	8	0	–	-	–	0.0017	-	2	–	0.491	–	N
2-Methylphenol	0	-	1	0	–	-	–	0.382	-	0.382	–	0.191	–	N
4-Methylphenol	0	-	1	0	–	-	–	0.382	-	0.382	–	0.191	–	N
2-Nitroaniline	0	-	1	0	–	-	–	1.85	-	1.85	–	0.925	–	N

Table E.13.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
3-Nitroaniline	0	-	1	0	–	-	–	1.85	-	1.85	–	0.925	–	N
p-Nitroaniline	0	-	1	0	–	-	–	1.85	-	1.85	–	0.925	–	N
2-Nitrophenol	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
4-Nitrophenol	0	-	8	0	–	-	–	1.85	-	2	–	0.991	–	N
n-Nitrosodi-n-propylamine	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
n-Nitrosodiphenylamine	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Pentachlorophenol	0	-	8	0	–	-	–	1.85	-	2	–	0.991	–	N
Phenol	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Tribromomethane	0	-	16	0	–	-	–	0.00579	-	0.01	–	0.00475	–	N
2,4,5-Trichlorophenol	0	-	1	0	–	-	–	0.382	-	0.382	–	0.191	–	N
2,4,6-Trichlorophenol	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	Y
Acenaphthylene	0	-	7	0	–	-	–	0.0003	-	0.33	–	0.0708	–	Y
Anthracene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	Y
Benzo(a)anthracene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Benzo(a)pyrene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Benzo(b)fluoranthene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Benzo(g,h,i)perylene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Benzo(k)fluoranthene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
1,2-Benzphenanthracene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
1-Chloronaphthalene	0	-	1	0	–	-	–	0.382	-	0.382	–	0.191	–	Y
2-Chloronaphthalene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	Y
Dibenz(a,h)anthracene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Fluoranthene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Fluorene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	Y
Indeno(1,2,3-cd)pyrene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
2-Methylnaphthalene	0	-	1	0	–	-	–	0.382	-	0.382	–	0.191	–	Y
Naphthalene	0	-	22	0	–	-	–	0.05	-	0.382	–	0.0723	–	Y
Phenanthrene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	Y
Pyrene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	14	0	–	-	–	50	-	50	–	25	–	N
Gasoline Range Organics (GRO)	0	-	14	0	–	-	–	1	-	1	–	0.5	–	N
Petroleum hydrocarbons	0	-	7	0	–	-	–	13	-	13	–	6.5	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	8	0	–	-	–	13	-	34.7	–	7.86	–	N
Explosives														

Table E.13.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
2,6-Dinitrotoluene	0	-	8	0	–	-	–	0.3	-	0.382	–	0.155	–	N
Inorganics														
Arsenic	13	-	23	56.5	0.5	-	11.6	2	-	2	HLSF-SB-033(10/31/2006)	2.71	3.76	N
Barium	16	-	23	69.6	17.3	-	207	88	-	100	HLSF-SB-034(10/31/2006)	60.7	75.88	N
Cadmium	1	-	23	4.35	0.134	-	0.134	0.1	-	2.6	HLSF-SB-033(9/28/2006)	0.461	–	N
Chromium	15	-	16	93.8	2.21	-	12.2	5.95	-	5.95	HLSF-SB-034(10/31/2006)	6.24	7.66	N
Chromium (Hexavalent)	0	-	16	0	–	-	–	0.4	-	5	–	1.54	–	N
Lead	13	-	23	56.5	2.73	-	46.2	1	-	26	HMW-22(11/2/1993)	12.5	16.02	N
Mercury	0	-	23	0	–	-	–	0.0232	-	0.1	–	0.0284	–	N
Phosphorus	14	-	14	100	67.7	-	275	–	-	–	HLSF-SB-033(10/31/2006)	137	177.3	N
Potassium	14	-	14	100	407	-	3310	–	-	–	HLSF-SB-032(10/24/2006)	1580	2011	N
Selenium	2	-	23	8.7	2.2	-	32.2	0.47	-	2.9	HMW-22(11/2/1993)	1.93	–	N
Silver	2	-	23	8.7	8.53	-	12.6	0.05	-	5.2	HMW-24(11/4/1993)	1.68	–	N
Sodium	14	-	14	100	203	-	2890	–	-	–	HLSF-SB-032(10/24/2006)	708	1055	N
Zinc	14	-	14	100	4.55	-	37.3	–	-	–	HLSF-SB-034(10/31/2006)	16.1	22.52	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.13.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/L)	Max (mg/L)	Min (mg/L)	Max (mg/L)				
Volatile Organic Compounds										
Acetone	0 - 3	0	–	–	0.01	0.01	–	0.005	–	Y
Acrylonitrile	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Benzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromobenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromodichloromethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromomethane	0 - 3	0	–	–	0.005	0.005	–	0.0025	–	Y
2-Butanone	0 - 3	0	–	–	0.005	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0 - 3	0	–	–	0.005	0.005	–	0.0025	–	Y
n-Butylbenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
sec-Butylbenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
tert-Butylbenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Carbon disulfide	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Carbon tetrachloride	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
CFC-11	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
CFC-12	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorobenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorobromomethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorodibromomethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	N
Chloroethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0 - 3	0	–	–	0.005	0.005	–	0.0025	–	Y
Chloroform	2 - 3	66.7	0.00522	0.00737	0.001	0.001	HMW-21	0.00436	–	Y
Chloromethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
2-Chlorotoluene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
4-Chlorotoluene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Cymene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0 - 3	0	–	–	0.005	0.005	–	0.0025	–	N
1,2-Dibromoethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Dibromomethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
1,4-Dichlorobenzene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
trans-1,4-Dichlorobutene	0 - 3	0	–	–	0.01	0.01	–	0.005	–	Y
1,1-Dichloroethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
1,2-Dichloroethane	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0 - 3	0	–	–	0.001	0.001	–	0.0005	–	Y
Dichloromethane	0 - 3	0	–	–	0.005	0.005	–	0.0025	–	Y

Table E.13.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloropropane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Methyl n-butyl ketone	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methylbenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
n-Propylbenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Vinyl chloride	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
1,4-Dioxane	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachloro-1,3-butadiene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Tribromomethane	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Polycyclic Aromatic Hydrocarbons														
Naphthalene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Inorganics														
Ammonia	0	-	3	0	–	-	–	1	-	1	–	0.5	–	N

Table E.13.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Arsenic	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Barium	2	-	3	66.7	0.01	-	0.01	0.01	-	0.01	HMW-23,HMW-24	0.00833	–	N
Cadmium	0	-	3	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chromium	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Copper	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Fluoride	3	-	3	100	3.85	-	5.75	–	-	–	HMW-24	4.62	–	N
Lead	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Mercury	0	-	3	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Nitrate	3	-	3	100	63.8	-	67.5	–	-	–	HMW-24	65.6	–	N
Nitrate + Nitrite	1	-	1	100	56.9	-	56.9	–	-	–	HMW-23	56.9	–	N
Phosphorus	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Selenium	2	-	3	66.7	0.086	-	0.114	0.01	-	0.01	HMW-24	0.0683	–	N
Silver	0	-	3	0	–	-	–	0.002	-	0.002	–	0.001	–	N
Sodium	3	-	3	100	2100	-	3460	–	-	–	HMW-24	2620	–	N
Sulfate	3	-	3	100	5890	-	8570	–	-	–	HMW-24	6980	–	N
Zinc	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Other														
Bromide	0	-	3	0	–	-	–	1	-	1	–	0.5	–	N
Chloride	3	-	3	100	1480	-	2240	–	-	–	HMW-21	1960	–	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.13-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Volatile Organic Compounds																			
Acetone	0	/	5	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrylonitrile	0	/	5	0	–	0.01	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0	/	5	0	–	0.01	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bromobenzene	0	/	5	0	–	0.01	–	3.00E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bromodichloromethane	0	/	5	0	–	0.01	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0	/	5	0	–	0.05	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0	/	5	0	–	0.05	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
tert-Butyl alcohol	0	/	5	0	–	0.2	–	2.35E+04	n	3.41E+05	n	–	–	–	–	–	–	no	no
n-Butylbenzene	0	/	5	0	–	0.01	–	4.45E+03	n	3.38E+04	n	–	–	–	–	–	–	no	no
sec-Butylbenzene	0	/	5	0	–	0.01	–	2.55E+03	n	1.53E+04	n	–	–	–	–	–	–	no	no
tert-Butylbenzene	0	/	5	0	–	0.01	–	2.52E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Carbon disulfide	0	/	5	0	–	0.01	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0	/	5	0	–	0.01	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0	/	5	0	–	0.01	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0	/	5	0	–	0.01	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0	/	5	0	–	0.01	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorobromomethane	0	/	5	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0	/	5	0	–	0.01	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0	/	5	0	–	0.01	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0	/	5	0	–	0.05	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0	/	5	0	–	0.01	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0	/	5	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorotoluene	0	/	5	0	–	0.01	–	1.56E+03	n	2.27E+04	n	–	–	–	–	–	–	no	no
4-Chlorotoluene	0	/	5	0	–	0.01	–	5.50E+03	n	7.20E+04	n	–	–	–	–	–	–	no	no
Cymene	0	/	5	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
1,2-Dibromo-3-chloropropane (DBCP)	0	/	5	0	–	0.05	–	5.40E-02	c	6.90E-01	c	–	–	–	–	–	–	no	no
1,2-Dibromoethane	0	/	5	0	–	0.01	–	5.74E-01	c	3.14E+00	c	–	–	–	–	–	–	no	no
Dibromomethane	0	/	5	0	–	0.01	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0	/	5	0	–	0.01	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0	/	5	0	–	0.01	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
trans-1,4-Dichlorobutene	0	/	5	0	–	0.1 ^	–	6.90E-02	c	3.50E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0	/	5	0	–	0.01	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0	/	5	0	–	0.01	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0	/	5	0	–	0.01	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0	/	5	0	–	0.01	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0	/	5	0	–	0.01	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0	/	5	0	–	0.05	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0	/	5	0	–	0.01	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
1,3-Dichloropropane	0	/	5	0	–	0.01	–	1.60E+03	n	2.00E+04	n	–	–	–	–	–	–	no	no
2,2-Dichloropropane	0	/	5	0	–	0.01	–	8.35E+00	n	3.90E+01	n	–	–	–	–	–	–	no	no
1,1-Dichloropropene	0	/	5	0	–	0.01	–	6.40E+01	c	3.18E+02	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0	/	5	0	–	0.01	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0	/	5	0	–	0.01	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethylbenzene	0	/	5	0	–	0.01	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0	/	5	0	–	0.05	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
Isopropyl alcohol	0	/	5	0	–	0.2	–	9.90E+09	n	4.20E+10	n	–	–	–	–	–	–	no	no
Isopropylbenzene	0	/	5	0	–	0.01	–	3.21E+03	n	1.49E+04	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0	/	5	0	–	0.01	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0	/	5	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0	/	5	0	–	0.01	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0	/	5	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Methyl tert-butyl ether (MTBE)	0	/	5	0	–	0.01	–	8.62E+02	c	4.69E+03	c	–	–	–	–	–	–	no	no
n-Propylbenzene	0	/	5	0	–	0.01	–	3.40E+03	n	2.10E+04	n	–	–	–	–	–	–	no	no
Styrene (monomer)	0	/	5	0	–	0.01	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0	/	5	0	–	0.01	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,1,2-Tetrachloroethane	0	/	5	0	–	0.01	–	2.92E+01	c	1.61E+02	c	–	–	–	–	–	–	no	no

Table E.13-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
1,1,2,2-Tetrachloroethane	0	/	5	0	–		0.01	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0	/	5	0	–		0.01	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0	/	5	0	–		0.01	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichlorobenzene	0	/	5	0	–		0.05	–	4.90E+01	n	4.90E+02	n	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0	/	5	0	–		0.01	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0	/	5	0	–		0.05	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
1,2,4-Trimethylbenzene	0	/	5	0	–		0.01	–	6.20E+01	n	2.60E+02	n	–	–	–	–	–	–	no	no
1,3,5-Trimethylbenzene	0	/	5	0	–		0.01	–	7.80E+02	n	1.00E+04	n	–	–	–	–	–	–	no	no
Trichloroethylene	0	/	5	0	–		0.01	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl chloride	0	/	5	0	–		0.01	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
m,p-Xylene	0	/	5	0	–		0.01	–	8.29E+03	n	2.72E+04	n	–	–	–	–	–	–	no	no
o-Xylene	0	/	5	0	–		0.01	–	9.55E+03	n	3.15E+04	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																				
Benzyl alcohol	0	/	5	0	–		0.25	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
2-Butoxy ethanol	0	/	5	0	–		0.25	–	3.10E+04	n	3.10E+05	n	–	–	–	–	–	–	no	no
1,4-Dioxane	0	/	5	0	–		0.5	–	4.42E+02	c	1.74E+03	c	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0	/	5	0	–		0.05	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Tribromomethane	0	/	5	0	–		0.01	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																				
Naphthalene	0	/	5	0	–		0.05	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)																				
Diesel Range Organics (DRO)	0	/	5	0	–		50	–	5.20E+02	n	1.12E+03	n	–	–	–	–	–	–	no	no
Gasoline Range Organics (GRO)	0	/	5	0	–		1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Inorganics																				
Arsenic	1	/	5	20	2.68		2	YES	3.90E+00	c	1.77E+01	c	no	no	6.87E-01	–	1.51E-01	–	no	no
Barium	5	/	5	100	48.6		–	YES	1.56E+04	n	2.24E+05	n	no	no	–	3.12E-03	–	2.17E-04	no	no
Cadmium	1	/	5	20	0.134		0.1	YES	7.79E+01	n	1.12E+03	n	no	no	–	1.72E-03	–	1.19E-04	no	no
Chromium	5	/	5	100	3.93		–	YES	2.19E+02	n	2.92E+03	n	no	no	–	1.79E-02	–	1.35E-03	no	no
Chromium (Hexavalent)	0	/	5	0	–		0.4	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	2	/	5	40	4.69		1	YES	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	0	/	5	0	–		0.04	no	7.71E+00	n	4.99E+01	n	–	–	–	–	–	–	no	no
Phosphorus	5	/	5	100	120	!	–	no	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Potassium	5	/	5	100	915	!	–	YES	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Selenium	0	/	5	0	–		1	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	0	/	5	0	–		0.05	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Sodium	5	/	5	100	332	!	–	YES	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Zinc	5	/	5	100	8.72		–	YES	2.35E+04	n	3.41E+05	n	no	no	–	3.72E-04	–	2.56E-05	no	no
Total Maximum / Screening Level Ratios															0.7	0.02	0.2	0.002		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)															7.E-06	0.02	2.E-06	0.002		

Target Organ Max/SL Ratios		
Kidney and Liver	0.005	0.0003
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	NA	NA
Lungs	0.02	0.001
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	0.0004	0.00003
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.003	0.0002
Immune System	NA	NA

Table E.13-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
									Development		NA		NA		
									Reproduction		NA		NA		
									Bone		NA		NA		
									Not Available/ Not Reported		NA		NA		

Notes:

– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.13-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	0	/	10	0	–	0.1	–	2.63E+05	n	–	–	–	no
Acrolein	0	/	5	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	10	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	10	0	–	0.01	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	5	0	–	0.3	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	5	0	–	0.3	–	3.10E+03	c	–	–	–	no
Bromobenzene	0	/	5	0	–	0.01	–	1.40E+03	n	–	–	–	no
Bromodichloromethane	0	/	5	0	–	0.01	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/	10	0	–	0.05	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	10	0	–	0.1	–	1.48E+05	n	–	–	–	no
tert-Butyl alcohol	0	/	5	0	–	0.2	–	9.29E+04	n	–	–	–	no
n-Butylbenzene	0	/	5	0	–	0.01	–	1.80E+04	n	–	–	–	no
sec-Butylbenzene	0	/	5	0	–	0.01	–	1.05E+04	n	–	–	–	no
tert-Butylbenzene	0	/	5	0	–	0.01	–	1.04E+04	n	–	–	–	no
Carbon disulfide	0	/	10	0	–	0.01	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	10	0	–	0.01	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	10	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	10	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	10	0	–	0.01	–	1.58E+03	n	–	–	–	no
Chlorobromomethane	0	/	5	0	–	0.01	–	NA	n	–	–	–	no
Chlorodibromomethane	0	/	10	0	–	0.01	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	10	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	10	0	–	0.05	–	NA	n	–	–	–	no
Chloroform	0	/	10	0	–	0.01	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	10	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	5	0	–	0.33	–	1.55E+03	n	–	–	–	no
2-Chlorotoluene	0	/	5	0	–	0.01	–	6.19E+03	n	–	–	–	no
4-Chlorotoluene	0	/	5	0	–	0.01	–	2.17E+04	n	–	–	–	no
Cymene	0	/	5	0	–	0.01	–	NA	n	–	–	–	no
1,2-Dibromo-3-chloropropane (DBCP)	0	/	5	0	–	0.05	–	5.99E+01	n	–	–	–	no
1,2-Dibromoethane	0	/	5	0	–	0.01	–	4.86E+01	c	–	–	–	no
Dibromomethane	0	/	10	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	10	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	10	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	5	0	–	0.02	–	5.80E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	5	0	–	0.1	–	9.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	10	0	–	0.01	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	10	0	–	0.01	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	10	0	–	0.01	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	5	0	–	0.01	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/	10	0	–	0.01	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	10	0	–	0.05	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	10	0	–	0.01	–	1.17E+02	n	–	–	–	no
1,3-Dichloropropane	0	/	5	0	–	0.01	–	6.19E+03	n	–	–	–	no
2,2-Dichloropropane	0	/	5	0	–	0.01	–	3.51E+01	n	–	–	–	no
1,1-Dichloropropene	0	/	5	0	–	0.01	–	2.17E+03	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	10	0	–	0.01	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	10	0	–	0.01	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	5	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	5	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	10	0	–	0.01	–	6.63E+03	c	–	–	–	no

Table E.13-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Iodomethane	0 / 10	0	–	0.05	–	5.41E+01	n	–	–	–	no
Isopropyl alcohol	0 / 5	0	–	0.2	–	NA	n	–	–	–	no
Isopropylbenzene	0 / 5	0	–	0.01	–	1.03E+04	n	–	–	–	no
m-Dichlorobenzene	0 / 10	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0 / 10	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0 / 10	0	–	0.01	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0 / 10	0	–	0.05	–	2.31E+04	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0 / 5	0	–	0.01	–	6.55E+04	c	–	–	–	no
Nitrobenzene	0 / 5	0	–	0.3	–	5.20E+02	n	–	–	–	no
n-Propylbenzene	0 / 5	0	–	0.01	–	1.64E+04	n	–	–	–	no
Styrene (monomer)	0 / 10	0	–	0.01	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0 / 10	0	–	0.01	–	3.38E+02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0 / 5	0	–	0.01	–	2.78E+03	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0 / 10	0	–	0.01	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0 / 10	0	–	0.01	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0 / 10	0	–	0.01	–	1.24E+03	n	–	–	–	no
1,2,3-Trichlorobenzene	0 / 5	0	–	0.05	–	2.48E+02	n	–	–	–	no
1,2,3-Trichloropropane	0 / 10	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0 / 10	0	–	0.3	–	4.27E+02	n	–	–	–	no
1,2,4-Trimethylbenzene	0 / 5	0	–	0.01	–	4.65E+02	n	–	–	–	no
1,3,5-Trimethylbenzene	0 / 5	0	–	0.01	–	3.10E+03	n	–	–	–	no
Trichloroethylene	0 / 10	0	–	0.01	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0 / 5	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0 / 10	0	–	0.01	–	2.48E+02	c	–	–	–	no
m,p-Xylene	0 / 5	0	–	0.01	–	2.38E+04	n	–	–	–	no
o-Xylene	0 / 5	0	–	0.01	–	2.75E+04	n	–	–	–	no
Xylenes	0 / 5	0	–	0.005	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds											
Benzidine	0 / 5	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0 / 5	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0 / 5	0	–	0.25	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0 / 5	0	–	0.3	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0 / 5	0	–	0.3	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0 / 5	0	–	0.3	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0 / 5	0	–	0.3	–	NA	n	–	–	–	no
2-Butoxy ethanol	0 / 5	0	–	0.25	–	2.38E+04	n	–	–	–	no
4-Chloro-3-methylphenol	0 / 5	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0 / 5	0	–	0.3	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0 / 5	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0 / 5	0	–	0.3	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0 / 5	0	–	0.3	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0 / 5	0	–	0.3	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0 / 5	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0 / 5	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0 / 5	0	–	0.3	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0 / 5	0	–	0.3	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0 / 5	0	–	0.3	–	9.53E+03	n	–	–	–	no
1,4-Dioxane	0 / 5	0	–	0.5	–	1.97E+04	c	–	–	–	no
Hexachloro-1,3-butadiene	0 / 10	0	–	0.3	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0 / 5	0	–	0.3	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0 / 5	0	–	0.3	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0 / 5	0	–	0.3	–	2.38E+02	n	–	–	–	no

Table E.13-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Methanamine, n-methyl-n-nitroso	0	/	5	0	–		0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	5	0	–		2	–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/	5	0	–		0.3	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	5	0	–		2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	5	0	–		0.3	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	5	0	–		0.3	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	5	0	–		2	–	1.03E+03	c	–	–	–	no
Phenol	0	/	5	0	–		0.3	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/	5	0	–		0.01	–	4.76E+03	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	5	0	–		0.3	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	5	0	–		0.3	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	/	5	0	–		0.3	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	5	0	–		0.33	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	5	0	–		0.3	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	5	0	–		0.3	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	5	0	–		0.3	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	5	0	–		0.3	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	5	0	–		0.3	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	5	0	–		0.3	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	5	0	–		0.3	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/	5	0	–		0.3	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	5	0	–		0.3	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	5	0	–		0.3	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	5	0	–		0.3	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	5	0	–		0.3	–	2.13E+02	c	–	–	–	no
Naphthalene	0	/	10	0	–		0.3	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	5	0	–		0.3	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	5	0	–		0.3	–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	/	5	0	–		50	–	NA	n	–	–	–	no
Gasoline Range Organics (GRO)	0	/	5	0	–		1	–	NA	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)	0	/	5	0	–		13	–	NA	n	–	–	–	no
Explosives														
2,6-Dinitrotoluene	0	/	5	0	–		0.3	–	2.39E+02	n	–	–	–	no
Inorganics														
Arsenic	6	/	10	60	2.68		2	YES	6.54E+01	n	no	–	4.10E-02	no
Barium	5	/	10	50	48.6		100	YES	4.35E+03	n	no	–	1.12E-02	no
Cadmium	1	/	10	10	0.134		2.6	YES	3.09E+02	n	no	–	4.34E-04	no
Chromium	5	/	5	100	3.93		–	YES	4.49E+02	n	no	–	8.74E-03	no
Chromium (Hexavalent)	0	/	5	0	–		0.4	no	4.49E+02	n	–	–	–	no
Lead	2	/	10	20	4.69		26	YES	8.00E+02	IEUBK	no	–	–	no
Mercury	0	/	10	0	–		0.1	no	6.36E+01	n	–	–	–	no
Phosphorus	5	/	5	100	120	!	–	no	NA	n	NA	–	–	no
Potassium	5	/	5	100	915	!	–	YES	NA	n	NA	–	–	no
Selenium	1	/	10	10	2.2		1	no	1.55E+03	n	no	–	1.42E-03	no
Silver	0	/	10	0	–		5.2	no	1.55E+03	n	–	–	–	no
Sodium	5	/	5	100	332	!	–	YES	NA	n	NA	–	–	no
Zinc	5	/	5	100	8.72		–	YES	9.29E+04	n	no	–	9.39E-05	no
Total Maximum / Screening Level Ratios												NA	0.06	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												NA	0.06	

Table E.13-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
							Target Organ Max/SL Ratios			
							Kidney and Liver		0.01	
							Brain		NA	
							Nasal		NA	
							Eyes		NA	
							Skin		0.04	
							Lungs		0.009	
							Gastrointestinal Tract and Forestomach		NA	
							Whole Body		0.001	
							Blood		0.00009	
							Nervous System		NA	
							Dental		NA	
							Red Blood Cells		NA	
							Glands		NA	
							Fetus		0.01	
							Immune System		NA	
							Development		NA	
							Reproduction		NA	
							Bone		NA	
							Not Available/ Not Reported		NA	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1×10^{5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.13-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	0	/	23	0	–	no
Acrolein	0	/	9	0	–	no
Acrylonitrile	0	/	23	0	–	no
Benzene	0	/	23	0	–	no
Bis(2-chloroethyl)ether	0	/	8	0	–	no
Bis(2-chloroisopropyl)ether	0	/	8	0	–	no
Bromobenzene	0	/	14	0	–	no
Bromodichloromethane	0	/	16	0	–	no
Bromomethane	0	/	23	0	–	no
2-Butanone	0	/	23	0	–	no
tert-Butyl alcohol	0	/	14	0	–	no
n-Butylbenzene	0	/	14	0	–	no
sec-Butylbenzene	0	/	14	0	–	no
tert-Butylbenzene	0	/	14	0	–	no
Carbon disulfide	0	/	23	0	–	no
Carbon tetrachloride	0	/	23	0	–	no
CFC-11	0	/	23	0	–	no
CFC-12	0	/	21	0	–	no
Chlorobenzene	0	/	23	0	–	no
Chlorobromomethane	0	/	14	0	–	no
Chloroethane	0	/	23	0	–	no
2-Chloroethyl vinyl ether	0	/	23	0	–	no
Chloroform	0	/	23	0	–	no
Chloromethane	0	/	23	0	–	no
2-Chlorophenol	0	/	8	0	–	no
2-Chlorotoluene	0	/	14	0	–	no
4-Chlorotoluene	0	/	14	0	–	no
Cymene	0	/	14	0	–	no
Dibenzofuran	0	/	1	0	–	no
1,2-Dibromoethane	0	/	14	0	–	no
Dibromomethane	0	/	23	0	–	no
1,2-Dichlorobenzene	0	/	23	0	–	no
1,4-Dichlorobenzene	0	/	23	0	–	no
1,4 Dichloro-2-butene	0	/	9	0	–	no
trans-1,4-Dichlorobutene	0	/	14	0	–	no
1,1-Dichloroethane	0	/	23	0	–	no
1,2-Dichloroethane	0	/	23	0	–	no
1,1-Dichloroethylene	0	/	23	0	–	no
cis-1,2-Dichloroethene	0	/	16	0	–	no
trans-1,2-Dichloroethene	0	/	23	0	–	no
Dichloromethane	0	/	21	0	–	no
1,2-Dichloropropane	0	/	23	0	–	no
1,3-Dichloropropane	0	/	14	0	–	no
2,2-Dichloropropane	0	/	14	0	–	no
1,1-Dichloropropene	0	/	14	0	–	no
cis-1,3-Dichloropropene	0	/	23	0	–	no
trans-1,3-Dichloropropene	0	/	23	0	–	no
Ethyl methacrylate	0	/	9	0	–	no
Ethylbenzene	0	/	23	0	–	no
Iodomethane	0	/	23	0	–	no
Isopropylbenzene	0	/	14	0	–	no
m-Dichlorobenzene	0	/	23	0	–	no
Methyl n-butyl ketone	0	/	23	0	–	no
Methylbenzene	0	/	23	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	23	0	–	no
Methyl tert-butyl ether (MTBE)	0	/	14	0	–	no
Nitrobenzene	0	/	8	0	–	no
n-Propylbenzene	0	/	14	0	–	no
Styrene (monomer)	0	/	23	0	–	no
Tetrachloroethene	0	/	23	0	–	no
1,1,1,2-Tetrachloroethane	0	/	14	0	–	no

Table E.13-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
1,1,2,2-Tetrachloroethane	0	/	23	0	–	no
1,1,1-Trichloroethane	0	/	23	0	–	no
1,1,2-Trichloroethane	0	/	23	0	–	no
1,2,3-Trichlorobenzene	0	/	14	0	–	no
1,2,3-Trichloropropane	0	/	23	0	–	no
1,2,4-Trichlorobenzene	0	/	22	0	–	no
1,2,4-Trimethylbenzene	0	/	14	0	–	no
1,3,5-Trimethylbenzene	0	/	14	0	–	no
Trichloroethylene	0	/	23	0	–	no
Vinyl acetate	0	/	9	0	–	no
Vinyl chloride	0	/	23	0	–	no
m,p-Xylene	0	/	14	0	–	no
o-Xylene	0	/	14	0	–	no
Xylenes	0	/	9	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	8	0	–	no
Acenaphthylene	0	/	7	0	–	no
Anthracene	0	/	8	0	–	no
1-Chloronaphthalene	0	/	1	0	–	no
2-Chloronaphthalene	0	/	8	0	–	no
Fluorene	0	/	8	0	–	no
2-Methylnaphthalene	0	/	1	0	–	no
Naphthalene	0	/	22	0	–	no
Phenanthrene	0	/	8	0	–	no

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway.

Table E.13-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	3	0	–	0.01	2.20E+02	n	–	–	–	no
Acrylonitrile	0	/	3	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	0	/	3	0	–	0.001	1.40E-02	c	–	–	–	no
Bromobenzene	0	/	3	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0	/	3	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0	/	3	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0	/	3	0	–	0.005	4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	3	0	–	0.005	NA	n	–	–	–	no
n-Butylbenzene	0	/	3	0	–	0.001	2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	3	0	–	0.001	2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	3	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	3	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	3	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	0	/	3	0	–	0.001	1.80E-01	n	–	–	–	no
CFC-12	0	/	3	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	3	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	3	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0	/	3	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	3	0	–	0.005	NA	n	–	–	–	no
Chloroform	2	/	3	66.7	0.00737	0.001	8.00E-02	c	no	9.21E-02	–	no
Chloromethane	0	/	3	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorotoluene	0	/	3	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0	/	3	0	–	0.001	NA	n	–	–	–	no
Cymene	0	/	3	0	–	0.001	NA	n	–	–	–	no
1,2-Dibromoethane	0	/	3	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0	/	3	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	3	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	3	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	3	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	0	/	3	0	–	0.001	2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0	/	3	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0	/	3	0	–	0.001	1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	3	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	3	0	–	0.001	1.80E-01	n	–	–	–	no
Dichloromethane	0	/	3	0	–	0.005	5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	3	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	3	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	3	0	–	0.001	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	3	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	3	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	3	0	–	0.001	NA	c	–	–	–	no
Ethylbenzene	0	/	3	0	–	0.001	7.00E-01	c	–	–	–	no
Iodomethane	0	/	3	0	–	0.005	NA	n	–	–	–	no
Isopropylbenzene	0	/	3	0	–	0.001	8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	3	0	–	0.001	8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	3	0	–	0.005	NA	n	–	–	–	no
Methylbenzene	0	/	3	0	–	0.001	1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	3	0	–	0.005	1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	3	0	–	0.001	1.20E+02	c	–	–	–	no
n-Propylbenzene	0	/	3	0	–	0.001	3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	3	0	–	0.001	8.90E+00	n	–	–	–	no

Table E.13-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Tetrachloroethene	0	/	3	0	–	0.001	1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	3	0	–	0.001	3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	3	0	–	0.001	3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	3	0	–	0.001	3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	3	0	–	0.001	4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	3	0	–	0.005	NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	3	0	–	0.001	2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	3	0	–	0.005	3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	3	0	–	0.001	2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	3	0	–	0.001	2.50E-02	n	–	–	–	no
Trichloroethylene	0	/	3	0	–	0.001	5.00E-03	c	–	–	–	no
Vinyl chloride	0	/	3	0	–	0.001	2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	3	0	–	0.001	2.30E+01	n	–	–	–	no
o-Xylene	0	/	3	0	–	0.001	3.30E+01	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Naphthalene	0	/	3	0	–	0.005	1.50E-01	c	–	–	–	no

	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios	0.09	NA
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	9.E-07	NA

Target Organ Max/SL Ratios	
Kidney and Liver	NA
Brain	NA
Nasal	NA
Eyes	NA
Skin	NA
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	NA
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Table E.13-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 146 (SWMU 146)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]

Notes:

– =	Not applicable.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-6} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.13.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	5	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrylonitrile	0	/	5	0	–	0.01		no	1,000	*R4*	NA	no	ND
Benzene	0	/	5	0	–	0.01		no	0.05	*R4*	NA	no	ND
Bromobenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Bromodichloromethane	0	/	5	0	–	0.01		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	5	0	–	0.05		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	5	0	–	0.05		no	89.6	*R5*	NA	no	ND
tert-Butyl alcohol	0	/	5	0	–	0.2		no	NA		NA	no	ND
n-Butylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
sec-Butylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
tert-Butylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Carbon disulfide	0	/	5	0	–	0.01		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	5	0	–	0.01		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	5	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	5	0	–	0.01		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	5	0	–	0.01		no	0.05	*R4*	NA	no	ND
Chlorobromomethane	0	/	5	0	–	0.01		no	NA		NA	no	ND
Chlorodibromomethane	0	/	5	0	–	0.01		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	5	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	5	0	–	0.05		no	NA		NA	no	ND
Chloroform	0	/	5	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	5	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorotoluene	0	/	5	0	–	0.01		no	NA		NA	no	ND
4-Chlorotoluene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Cymene	0	/	5	0	–	0.01		no	NA		NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP)	0	/	5	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	5	0	–	0.01		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	5	0	–	0.01		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	5	0	–	0.01		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	5	0	–	0.01		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	5	0	–	0.01		no	0.546	*R5*	NA	no	ND
trans-1,4-Dichlorobutene	0	/	5	0	–	0.1		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	5	0	–	0.01		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	5	0	–	0.01		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	5	0	–	0.01		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	5	0	–	0.01		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	5	0	–	0.01		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	5	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	5	0	–	0.01		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	5	0	–	0.01		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	5	0	–	0.01		no	700	*R4s*	NA	no	ND
1,1-Dichloropropene	0	/	5	0	–	0.01		no	NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	5	0	–	0.01		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	5	0	–	0.01		no	0.398	*R5*	NA	no	ND
Ethylbenzene	0	/	5	0	–	0.01		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	5	0	–	0.05		no	1.23	*R5*	NA	no	ND

Table E.13.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Isopropyl alcohol	0	/	5	0	–	0.2		no	NA		NA	no	ND
Isopropylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Methyl n-butyl ketone	0	/	5	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	5	0	–	0.01		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	5	0	–	0.05		no	443	*R5*	NA	no	ND
Methyl tert-butyl ether (MTBE)	0	/	5	0	–	0.01		no	NA		NA	no	ND
n-Propylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Styrene (monomer)	0	/	5	0	–	0.01		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	5	0	–	0.01		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	5	0	–	0.01		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	5	0	–	0.01		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	5	0	–	0.01		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	5	0	–	0.01		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	5	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	5	0	–	0.01		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	5	0	–	0.05		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Trichloroethylene	0	/	5	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Vinyl chloride	0	/	5	0	–	0.01		no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Semi Volatile Organic Compounds													
Benzyl alcohol	0	/	5	0	–	0.25		no	65.8	*R5*	NA	no	ND
2-Butoxy ethanol	0	/	5	0	–	0.25		no	NA		NA	no	ND
1,4-Dioxane	0	/	5	0	–	0.5		no	2.05	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	5	0	–	0.05	^	no	0.0398	*R5*	NA	no	ND
Tribromomethane	0	/	5	0	–	0.01		no	15.9	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Naphthalene	0	/	5	0	–	0.05		no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	/	5	0	–	50		no	10,000	*API*	NA	no	ND
Gasoline Range Organics (GRO)	0	/	5	0	–	1		no	10,000	*API*	NA	no	ND
Inorganics													
Arsenic	1	/	5	20	2.68	2		YES	18	*EcoSSL*	0.1	no	≤ BKGD
Barium	5	/	5	100	48.6	–		YES	330	*EcoSSL*	0.1	no	≤ BKGD
Cadmium	1	/	5	20	0.134	0.1		YES	0.36	*EcoSSL*	0.4	no	≤ BKGD
Chromium	5	/	5	100	3.93	–		YES	26	*EcoSSL*	0.2	no	≤ BKGD
Chromium (Hexavalent)	0	/	5	0	–	0.4		no	130	*EcoSSL*	NA	no	ND
Lead	2	/	5	40	4.69	1		YES	11	*EcoSSL*	0.4	no	≤ BKGD
Mercury	0	/	5	0	–	0.04		no	0.1	*R4*	NA	no	ND
Selenium	0	/	5	0	–	1	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	5	0	–	0.05		no	4.2	*EcoSSL*	NA	no	ND
Zinc	5	/	5	100	8.72	–		YES	46	*EcoSSL*	0.2	no	≤ BKGD

Table E.13.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)	Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.13.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	10	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	5	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	10	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	10	0	–	0.01		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	5	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	5	0	–	0.3		no	NA		NA	no	ND
Bromobenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Bromodichloromethane	0	/	5	0	–	0.01		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	10	0	–	0.05		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	10	0	–	0.1		no	89.6	*R5*	NA	no	ND
tert-Butyl alcohol	0	/	5	0	–	0.2		no	NA		NA	no	ND
n-Butylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
sec-Butylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
tert-Butylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Carbon disulfide	0	/	10	0	–	0.01		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	10	0	–	0.01		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	10	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	10	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	10	0	–	0.01		no	0.05	*R4*	NA	no	ND
Chlorobromomethane	0	/	5	0	–	0.01		no	NA		NA	no	ND
Chlorodibromomethane	0	/	10	0	–	0.01		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	10	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	10	0	–	0.05		no	NA		NA	no	ND
Chloroform	0	/	10	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	10	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	5	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
2-Chlorotoluene	0	/	5	0	–	0.01		no	NA		NA	no	ND
4-Chlorotoluene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Cymene	0	/	5	0	–	0.01		no	NA		NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP)	0	/	5	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	5	0	–	0.01		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	10	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	10	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	10	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	10	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	5	0	–	0.02		no	NA		NA	no	ND
trans-1,4-Dichlorobutene	0	/	5	0	–	0.1		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	10	0	–	0.01		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	10	0	–	0.01		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	10	0	–	0.01		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	5	0	–	0.01		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	10	0	–	0.01		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	10	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	10	0	–	0.01		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	5	0	–	0.01		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	5	0	–	0.01		no	700	*R4s*	NA	no	ND

Table E.13.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,1-Dichloropropene	0	/	5	0	–	0.01		no	NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	10	0	–	0.01		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	10	0	–	0.01		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	5	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	5	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	10	0	–	0.01		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	10	0	–	0.05		no	1.23	*R5*	NA	no	ND
Isopropyl alcohol	0	/	5	0	–	0.2		no	NA		NA	no	ND
Isopropylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Methyl n-butyl ketone	0	/	10	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	10	0	–	0.01		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	10	0	–	0.05		no	443	*R5*	NA	no	ND
Methyl tert-butyl ether (MTBE)	0	/	5	0	–	0.01		no	NA		NA	no	ND
Nitrobenzene	0	/	5	0	–	0.3		no	40	*R4*	NA	no	ND
n-Propylbenzene	0	/	5	0	–	0.01		no	NA		NA	no	ND
Styrene (monomer)	0	/	10	0	–	0.01		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	10	0	–	0.01		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	5	0	–	0.01		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	10	0	–	0.01		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	10	0	–	0.01		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	10	0	–	0.01		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	5	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	10	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	10	0	–	0.3		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Trichloroethylene	0	/	10	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	5	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	10	0	–	0.01		no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	5	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Xylenes	0	/	5	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	5	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	5	0	–	2		no	NA		NA	no	ND
Benzyl alcohol	0	/	5	0	–	0.25		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	5	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	5	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	5	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	5	0	–	0.3		no	NA		NA	no	ND
2-Butoxy ethanol	0	/	5	0	–	0.25		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	5	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	5	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	5	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	5	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	5	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	5	0	–	0.3	^	no	0.01	*R5*	NA	no	ND

Table E.13.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
2,4-Dinitrophenol	0	/	5	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	5	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	5	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	5	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	5	0	–	0.3		no	709	*R5*	NA	no	ND
1,4-Dioxane	0	/	5	0	–	0.5		no	2.05	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	10	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	5	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	5	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	5	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	5	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	5	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	5	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	5	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	5	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	5	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	5	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	5	0	–	0.3		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	5	0	–	0.01		no	15.9	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	5	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	5	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	5	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	5	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	5	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	5	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	5	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	5	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	5	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	5	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	5	0	–	0.3		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	5	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	5	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	5	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	5	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	5	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	10	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	5	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	5	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Diesel Range Organics (DRO)	0	/	5	0	–	50		no	10,000	*API*	NA	no	ND
Gasoline Range Organics (GRO)	0	/	5	0	–	1		no	10,000	*API*	NA	no	ND
Petroleum hydrocarbons	0	/	5	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	5	0	–	13		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	5	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND

Table E.13.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Inorganics													
Arsenic	6	/	10	60	2.68	2		YES	18	*EcoSSL*	0.1	no	≤ BKGD
Barium	5	/	10	50	48.6	100		YES	330	*EcoSSL*	0.1	no	≤ BKGD
Cadmium	1	/	10	10	0.134	2.6		YES	0.36	*EcoSSL*	0.4	no	≤ BKGD
Chromium	5	/	5	100	3.93	–		YES	26	*EcoSSL*	0.2	no	≤ BKGD
Chromium (Hexavalent)	0	/	5	0	–	0.4		no	130	*EcoSSL*	NA	no	ND
Lead	2	/	10	20	4.69	26		YES	11	*EcoSSL*	0.4	no	≤ BKGD
Mercury	0	/	10	0	–	0.1		no	0.1	*R4*	NA	no	ND
Selenium	1	/	10	10	2.2	1		no	0.52	*EcoSSL*	4	**YES**	HQ > 1
Silver	0	/	10	0	–	5.2	^	no	4.2	*EcoSSL*	NA	no	ND
Zinc	5	/	5	100	8.72	–		YES	46	*EcoSSL*	0.2	no	≤ BKGD

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.13.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Selenium	2.2	m	0.52	*EcoSSL*	4	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.13.ERA-4
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]				
	BERA COPEC?		0-2 ft bgs		0-10 ft bgs		
Constituent	0-2 ft bgs	0-10 ft bgs	Maximum Scenario	Refined Scenario	Maximum Scenario		Refined Scenario
Inorganics							
Selenium	no	YES	NA	NA	2.2	m	0.569

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
ft bgs = Feet below ground surface.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.13.ERA-5
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Selenium	2.2	m	8.88E-01	2.84E-01	0.034	1.4	0.14	0.02	0.2

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.13.ERA-6
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Selenium	0.569	6.14E-01	2.73E-01	5.34E-01	1.02E-01	3.27E-02	1.71E-01	0.0000063	1.4	0.14	0.000005	0.00005

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day : Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.13.ERA-7
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Inorganics									
Selenium	1	-	10	0.569	4	EcoSSL	veg	0.000005	0.00005

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.14.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrolein	0	-	1	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromomethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
2-Butanone	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–
Carbon disulfide	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Carbon tetrachloride	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
CFC-11	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chlorodibromomethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloroethane	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroform	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloromethane	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Dibromomethane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4 Dichloro-2-butene	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1-Dichloroethylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Dichloromethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloropropane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
cis-1,3-Dichloropropene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Ethanol	0	-	1	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Iodomethane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.14.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	1	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	1	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.14.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4,6-Trichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Explosives													
2,6-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	0	-	1	0	–	-	–	0.5	-	0.5	–	0.25	–
Barium	0	-	1	0	–	-	–	100	-	100	–	50	–
Cadmium	0	-	1	0	–	-	–	2.6	-	2.6	–	1.3	–
Lead	0	-	1	0	–	-	–	26	-	26	–	13	–
Mercury	0	-	1	0	–	-	–	0.08	-	0.08	–	0.04	–

Table E.14.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min - Max (mg/kg)		Min - Max (mg/kg)				
Selenium	0 - 1	0	–	–	0.5	0.5	–	0.25	–
Silver	0 - 1	0	–	–	5.2	5.2	–	2.6	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.14.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds															
Acetone	0	-	3	0	–	-	–		0.1	-	0.1		–	0.05	–
Acrolein	0	-	3	0	–	-	–		0.2	-	0.2		–	0.1	–
Acrylonitrile	0	-	3	0	–	-	–		0.1	-	0.1		–	0.05	–
Benzene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Bis(2-chloroethyl)ether	0	-	3	0	–	-	–		0.3	-	0.3		–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	3	0	–	-	–		0.3	-	0.3		–	0.15	–
Bromomethane	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
2-Butanone	0	-	3	0	–	-	–		0.1	-	0.1		–	0.05	–
Carbon disulfide	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Carbon tetrachloride	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
CFC-11	0	-	3	0	–	-	–		0.01	-	0.01		–	0.005	–
CFC-12	0	-	3	0	–	-	–		0.02	-	0.02		–	0.01	–
Chlorobenzene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Chlorodibromomethane	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Chloroethane	0	-	3	0	–	-	–		0.01	-	0.01		–	0.005	–
2-Chloroethyl vinyl ether	0	-	3	0	–	-	–		0.01	-	0.01		–	0.005	–
Chloroform	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Chloromethane	0	-	3	0	–	-	–		0.01	-	0.01		–	0.005	–
2-Chlorophenol	0	-	3	0	–	-	–		0.3	-	0.33		–	0.155	–
Dibromomethane	0	-	3	0	–	-	–		0.02	-	0.02		–	0.01	–
1,2-Dichlorobenzene	0	-	3	0	–	-	–		0.3	-	0.3		–	0.15	–
1,4-Dichlorobenzene	0	-	3	0	–	-	–		0.3	-	0.3		–	0.15	–
1,4 Dichloro-2-butene	0	-	3	0	–	-	–		0.02	-	0.02		–	0.01	–
1,1-Dichloroethane	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,2-Dichloroethane	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,1-Dichloroethylene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
trans-1,2-Dichloroethene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Dichloromethane	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,2-Dichloropropane	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
cis-1,3-Dichloropropene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
trans-1,3-Dichloropropene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Ethanol	0	-	3	0	–	-	–		1	-	1		–	0.5	–
Ethyl methacrylate	0	-	3	0	–	-	–		0.02	-	0.02		–	0.01	–
Ethylbenzene	0	-	3	0	–	-	–		0.005	-	0.005		–	0.0025	–
Iodomethane	0	-	3	0	–	-	–		0.02	-	0.02		–	0.01	–
m-Dichlorobenzene	0	-	3	0	–	-	–		0.3	-	0.3		–	0.15	–

Table E.14.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	3	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	3	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	3	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	1	-	3	33.3	0.46	-	0.46	0.3	-	0.3	147B1(6/8/1992)	0.253	–
4-Bromophenyl phenyl ether	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	3	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	3	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	3	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorobenzene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	3	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.14.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	3	0	–	-	–	1.7	-	2	–	0.9	–
2-Nitrophenol	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	3	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	3	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4,6-Trichlorophenol	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	3	0	–	-	–	0.3	-	0.33	–	0.155	–
Anthracene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	1	-	1	100	2600	-	2600	–	-	–	HCF-01(3/28/1990)	2600	–
Petroleum hydrocarbons	1	-	3	33.3	21	-	21	13	-	13	147B1(6/8/1992)	11.3	–
Total Petroleum Hydrocarbons (TPH)	1	-	3	33.3	21	-	21	13	-	13	147B1(6/8/1992)	11.3	–
Explosives													
2,6-Dinitrotoluene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	1	-	3	33.3	0.73	-	0.73	0.5	-	0.52	147B1(6/8/1992)	0.413	–
Barium	0	-	3	0	–	-	–	100	-	110	–	51.7	–
Cadmium	0	-	3	0	–	-	–	2.6	-	2.7	–	1.32	–
Lead	0	-	3	0	–	-	–	26	-	27	–	13.2	–

Table E.14.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Mercury	0	-	3	0	–	-	–	0.08	-	0.1	–	0.0467	–
Selenium	0	-	3	0	–	-	–	0.5	-	0.52	–	0.253	–
Silver	0	-	3	0	–	-	–	5.2	-	5.3	–	2.63	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.14.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	3	-	7	42.9	0.52	-	0.6	0.1	-	0.1	147B1,147B1(6/8/1992)	0.274	–	Y
Acrolein	0	-	7	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
Acrylonitrile	0	-	7	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
Benzene	2	-	7	28.6	0.016	-	0.17	0.005	-	0.005	147B1(6/8/1992)	0.0284	–	Y
Bis(2-chloroethyl)ether	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Bis(2-chloroisopropyl)ether	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Bromodichloromethane	0	-	1	0	–	-	–	0.625	-	0.625	–	0.313	–	Y
Bromomethane	0	-	8	0	–	-	–	0.005	-	1.25	–	0.0803	–	Y
2-Butanone	0	-	7	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
Carbon disulfide	1	-	7	14.3	0.0065	-	0.0065	0.005	-	0.005	147B1(6/8/1992)	0.00307	–	Y
Carbon tetrachloride	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
CFC-11	0	-	8	0	–	-	–	0.01	-	0.625	–	0.0434	–	Y
CFC-12	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Chlorinated fluorocarbon (Freon 113)	0	-	1	0	–	-	–	6.25	-	6.25	–	3.13	–	Y
Chlorobenzene	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
Chlorodibromomethane	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	N
Chloroethane	0	-	8	0	–	-	–	0.01	-	1.25	–	0.0825	–	Y
2-Chloroethyl vinyl ether	0	-	8	0	–	-	–	0.01	-	1.25	–	0.0825	–	Y
Chloroform	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
Chloromethane	0	-	7	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chlorophenol	0	-	7	0	–	-	–	0.3	-	8	–	0.824	–	Y
Dibromomethane	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,2-Dichlorobenzene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	-	1	0	–	-	–	0.625	-	0.625	–	0.313	–	Y
1,4-Dichlorobenzene	0	-	8	0	–	-	–	0.3	-	0.625	–	0.17	–	Y
1,4 Dichloro-2-butene	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,1-Dichloroethane	2	-	8	25	0.0095	-	0.033	0.005	-	1.25	147B1(6/8/1992)	0.085	–	Y
1,2-Dichloroethane	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
1,1-Dichloroethylene	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
trans-1,2-Dichloroethene	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
Dichloromethane	0	-	8	0	–	-	–	0.005	-	1.25	–	0.0803	–	Y
1,2-Dichloropropane	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
cis-1,3-Dichloropropene	0	-	7	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
trans-1,3-Dichloropropene	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
Ethanol	0	-	7	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y

Table E.14.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Ethylbenzene	3	-	7	42.9	0.046	-	4.1	0.005	-	0.005	147B1(6/8/1992)	0.808	–	Y
Iodomethane	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
m-Dichlorobenzene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Methyl n-butyl ketone	0	-	7	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methylbenzene	0	-	7	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	7	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Nitrobenzene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Styrene (monomer)	0	-	7	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Tetrachloroethene	0	-	7	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,2,2-Tetrachloroethane	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
1,1,1-Trichloroethane	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
1,1,2-Trichloroethane	0	-	8	0	–	-	–	0.005	-	0.625	–	0.0413	–	Y
1,2,3-Trichloropropane	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,2,4-Trichlorobenzene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Trichloroethylene	0	-	7	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Vinyl acetate	0	-	7	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Vinyl chloride	0	-	8	0	–	-	–	0.01	-	1.25	–	0.0825	–	Y
Xylenes	1	-	7	14.3	0.12	-	0.12	0.005	-	0.005	147B1	0.0193	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	7	0	–	-	–	1.7	-	1.7	–	0.85	–	N
Benzoic acid	0	-	7	0	–	-	–	2	-	2	–	1	–	N
Benzyl butyl phthalate	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Bis(2-chloroethoxy)methane	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Bis(2-ethylhexyl)phthalate	1	-	7	14.3	0.46	-	0.46	0.3	-	0.3	147B1(6/8/1992)	0.194	–	N
4-Bromophenyl phenyl ether	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Chloro-3-methylphenol	0	-	7	0	–	-	–	0.7	-	0.7	–	0.35	–	N
4-Chlorophenyl phenyl ether	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
3,3'-Dichlorobenzidine	0	-	7	0	–	-	–	0.7	-	0.7	–	0.35	–	N
2,4-Dichlorophenol	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Diethyl phthalate	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4-Dimethylphenol	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4-Dinitrophenol	0	-	7	0	–	-	–	2	-	2	–	1	–	N
2,4-Dinitrotoluene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Dimethyl phthalate	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Di-n-butyl phthalate	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Di-n-octyl phthalate	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachloro-1,3-butadiene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachlorobenzene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N

Table E.14.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Hexachlorocyclopentadiene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachloroethane	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Methanamine, n-methyl-n-nitroso	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–	N
2-Methyl-4,6-dinitrophenol	0	-	7	0	–	-	–	1.7	-	42	–	4.22	–	N
2-Nitrophenol	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Nitrophenol	0	-	7	0	–	-	–	2	-	2	–	1	–	N
n-Nitrosodi-n-propylamine	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
n-Nitrosodiphenylamine	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Pentachlorophenol	0	-	7	0	–	-	–	2	-	2	–	1	–	N
Phenol	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Tribromomethane	0	-	1	0	–	-	–	0.625	-	0.625	–	0.313	–	N
2,4,6-Trichlorophenol	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Acenaphthylene	0	-	7	0	–	-	–	0.3	-	8	–	0.824	–	Y
Anthracene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Benzo(a)anthracene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(a)pyrene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(b)fluoranthene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(g,h,i)perylene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(k)fluoranthene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
1,2-Benzphenanthracene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2-Chloronaphthalene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Dibenz(a,h)anthracene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Fluoranthene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Fluorene	2	-	7	28.6	0.46	-	2	0.3	-	0.3	147B1(6/8/1992)	0.459	–	Y
Indeno(1,2,3-cd)pyrene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Naphthalene	3	-	7	42.9	1.3	-	14	0.3	-	0.3	147B1(6/8/1992)	3.43	–	Y
Phenanthrene	4	-	7	57.1	0.36	-	18	0.3	-	0.3	147B1(6/8/1992)	4.63	–	Y
Pyrene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Total Petroleum Hydrocarbons (TPH)														
>C10-C28	4	-	4	100	2200	-	11000	–	-	–	HCF-01(3/28/1990)	5250	–	N
Petroleum hydrocarbons	5	-	7	71.4	21	-	13000	13	-	13	147B1(6/8/1992)	2850	–	N
Total Petroleum Hydrocarbons (TPH)	5	-	7	71.4	21	-	13000	13	-	13	147B1(6/8/1992)	2850	–	N
Explosives														
2,6-Dinitrotoluene	0	-	7	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Inorganics														

Table E.14.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Arsenic	7	-	10	70	0.73	-	35	0.49	-	0.52	HCF-01(3/28/1990)	7.49	14.81	N
Barium	2	-	10	20	3	-	22	0.05	-	110	147B1(6/8/1992)	28.8	–	N
Cadmium	3	-	10	30	0.25	-	2	0.48	-	2.7	HCF-01(3/28/1990)	0.966	–	N
Chromium	3	-	3	100	1	-	5	–	-	–	HCF-01(3/28/1990)	2.67	–	N
Lead	4	-	10	40	4	-	17	5.3	-	27	HCF-01(3/28/1990)	10.8	–	N
Mercury	0	-	10	0	–	-	–	0.02	-	0.1	–	0.035	–	N
Selenium	2	-	10	20	0.8	-	75	0.3	-	0.54	HCF-01(3/28/1990)	7.77	–	N
Silver	0	-	7	0	–	-	–	0.95	-	5.3	–	1.97	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.14.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/L)	Max (mg/L)	Min (mg/L)	Max (mg/L)				
Volatile Organic Compounds										
Acetone	0 - 2	0	–	–	0.01	0.01	–	0.005	–	Y
Acetophenone	0 - 2	0	–	–	5	5	–	2.5	–	Y
Acrylonitrile	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Benzene	2 - 2	100	0.00152	0.00292	–	–	HCF-01(3/8/2004)	0.00222	–	Y
Bis(2-chloroethyl)ether	0 - 2	0	–	–	5	5	–	2.5	–	Y
Bis(2-chloroisopropyl)ether	0 - 2	0	–	–	5	5	–	2.5	–	Y
Bromobenzene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromodichloromethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromomethane	0 - 2	0	–	–	0.005	0.005	–	0.0025	–	Y
2-Butanone	0 - 2	0	–	–	0.005	0.005	–	0.0025	–	Y
n-Butylbenzene	2 - 2	100	0.00125	0.00168	–	–	HCF-01(8/11/2004)	0.00147	–	Y
sec-Butylbenzene	2 - 2	100	0.00486	0.00615	–	–	HCF-01(8/11/2004)	0.00551	–	Y
tert-Butylbenzene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Carbon disulfide	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Carbon tetrachloride	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
CFC-11	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
CFC-12	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorobenzene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorobromomethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorodibromomethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	N
Chloroethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0 - 2	0	–	–	0.005	0.005	–	0.0025	–	Y
Chloroform	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Chloromethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
2-Chlorophenol	0 - 2	0	–	–	5	5	–	2.5	–	Y
2-Chlorotoluene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
4-Chlorotoluene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Cymene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Dibenzofuran	2 - 2	100	0.00779	0.00871	–	–	HCF-01(8/11/2004)	0.00825	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0 - 2	0	–	–	0.005	0.005	–	0.0025	–	N
1,2-Dibromoethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
Dibromomethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
1,4-Dichlorobenzene	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
trans-1,4-Dichlorobutene	0 - 2	0	–	–	0.01	0.01	–	0.005	–	Y
1,1-Dichloroethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y
1,2-Dichloroethane	0 - 2	0	–	–	0.001	0.001	–	0.0005	–	Y

Table E.14.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,1-Dichloroethylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropylbenzene	2	-	2	100	0.00631	-	0.00668	–	-	–	HCF-01(8/11/2004)	0.0065	–	Y
m-Dichlorobenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Methyl n-butyl ketone	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
n-Propylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Vinyl chloride	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Aniline	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Benzidine	0	-	2	0	–	-	–	15	-	15	–	7.5	–	N

Table E.14.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Benzoic acid	0	-	2	0	–	-	–	20	-	20	–	10	–	N
Benzyl alcohol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Benzyl butyl phthalate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Bis(2-chloroethoxy)methane	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Bis(2-ethylhexyl)phthalate	0	-	2	0	–	-	–	10	-	10	–	5	–	N
4-Bromophenyl phenyl ether	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
p-Chloroaniline	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
4-Chloro-3-methylphenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Chlorophenols	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
4-Chlorophenyl phenyl ether	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
m,p-Cresol	0	-	1	0	–	-	–	5	-	5	–	2.5	–	N
Dibenz[a,,j]acridine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
3,3'-Dichlorobenzidine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2,4-Dichlorophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2,6-Dichlorophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Diethyl phthalate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
4-Dimethylaminoazobenzene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2,4-Dimethylphenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2,4-Dinitrophenol	0	-	2	0	–	-	–	20	-	20	–	10	–	N
2,4-Dinitrotoluene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
a,a-Dimethylphenethylamine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Dimethyl phthalate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Di-n-butyl phthalate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
m-Dinitrobenzene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Di-n-octyl phthalate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Diphenylamine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Diphenylhydrazine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Ethyl methanesulfonate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Hexachloro-1,3-butadiene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorobenzene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Hexachlorocyclopentadiene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Hexachloroethane	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Methanamine, n-methyl-n-nitroso	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2-Methyl-4,6-dinitrophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Methyl methanesulfonate	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2-Methylphenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
3-Methylphenol	0	-	1	0	–	-	–	5	-	5	–	2.5	–	N
4-Methylphenol	0	-	1	0	–	-	–	5	-	5	–	2.5	–	N
2-Methyl pyridine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N

Table E.14.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1-Naphthylamine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2-Naphthylamine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2-Nitroaniline	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
3-Nitroaniline	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
p-Nitroaniline	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2-Nitrophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
4-Nitrophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
n-Nitrosodi-n-butylamine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
n-Nitrosodi-n-propylamine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
n-Nitrosopiperidine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Pentachlorobenzene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Pentachlorophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Phenacetin	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Phenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Propyzamide	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Pyridine	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
1,2,4,5-Tetrachlorobenzene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Tribromomethane	0	-	2	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2,4,6-Trichlorophenol	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
1,3,5-Trinitrobenzene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
Acenaphthylene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
Anthracene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
Benzo(a)anthracene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Benzo(a)pyrene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Benzo(b)fluoranthene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Benzo(g,h,i)perylene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Benzo(k)fluoranthene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
1,2-Benzphenanthracene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
1-Chloronaphthalene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
2-Chloronaphthalene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
Dibenz(a,h)anthracene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
7,12-Dimethylbenz(a)anthracene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Fluoranthene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Fluorene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	Y
Indeno(1,2,3-cd)pyrene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N

Table E.14.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
3-Methylchloranthrene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
1-Methylnaphthalene	2	-	2	100	0.0733	-	0.0816	–	-	–	HCF-01(8/11/2004)	0.0775	–	Y
2-Methylnaphthalene	2	-	2	100	0.0839	-	0.0917	–	-	–	HCF-01(8/11/2004)	0.0878	–	Y
Naphthalene	2	-	2	100	0.0324	-	0.0703	–	-	–	HCF-01(3/8/2004)	0.0514	–	Y
Phenanthrene	2	-	2	100	0.00717	-	0.0113	–	-	–	HCF-01(8/11/2004)	0.00924	–	Y
Pyrene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Pesticides														
Pentachloronitrobenzene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	1	-	2	50	16.2	-	16.2	50	-	50	HCF-01(8/11/2004)	20.6	–	N
Gasoline Range Organics (GRO)	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Explosives														
4-Amino-dnt / 2-Amino-dnt	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	2	0	–	-	–	5	-	5	–	2.5	–	N
2,6-DNT / 2,4-DNT	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2-Nitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
3-Nitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocin	1	-	2	50	0.00287	-	0.00287	0.0005	-	0.0005	HCF-01(8/11/2004)	0.00156	–	N
RDX	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Aluminum	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Ammonia	0	-	2	0	–	-	–	1	-	1	–	0.5	–	N
Arsenic	0	-	2	0	–	-	–	0.005	-	0.01	–	0.00375	–	N
Barium	1	-	2	50	0.029	-	0.029	0.1	-	0.1	HCF-01(8/11/2004)	0.0395	–	N
Beryllium	0	-	2	0	–	-	–	0.0025	-	0.0025	–	0.00125	–	N
Boron	2	-	2	100	5.98	-	6.14	–	-	–	HCF-01(8/11/2004)	6.06	–	N
Cadmium	0	-	2	0	–	-	–	0.001	-	0.005	–	0.0015	–	N
Chromium	1	-	2	50	0.006	-	0.006	0.01	-	0.01	HCF-01(8/11/2004)	0.0055	–	N
Chromium (Hexavalent)	1	-	2	50	0.034	-	0.034	0.01	-	0.01	HCF-01(3/8/2004)	0.0195	–	N
Cobalt	0	-	2	0	–	-	–	0.005	-	0.02	–	0.00625	–	N
Copper	1	-	2	50	0.045	-	0.045	0.0125	-	0.0125	HCF-01(8/11/2004)	0.0256	–	N
Fluoride	2	-	2	100	3.95	-	3.97	–	-	–	HCF-01(3/8/2004)	3.96	–	N
Iron	2	-	2	100	0.179	-	0.537	–	-	–	HCF-01(8/11/2004)	0.358	–	N
Lead	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Manganese	2	-	2	100	0.452	-	0.967	–	-	–	HCF-01(8/11/2004)	0.71	–	N
Mercury	0	-	2	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N

Table E.14.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Molybdenum	2	-	2	100	0.329	-	0.526	–	-	–	HCF-01(8/11/2004)	0.428	–	N
Nickel	1	-	2	50	0.02	-	0.02	0.025	-	0.025	HCF-01(8/11/2004)	0.0163	–	N
Nitrate	2	-	2	100	8.97	-	15.4	–	-	–	HCF-01(8/11/2004)	12.2	–	N
Phosphorus	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Selenium	0	-	2	0	–	-	–	0.01	-	0.05	–	0.015	–	N
Silver	0	-	2	0	–	-	–	0.003	-	0.0125	–	0.00388	–	N
Strontium	2	-	2	100	5.08	-	5.48	–	-	–	HCF-01(8/11/2004)	5.28	–	N
Sulfate	2	-	2	100	4380	-	4820	–	-	–	HCF-01(8/11/2004)	4600	–	N
Tin	0	-	2	0	–	-	–	0.025	-	0.025	–	0.0125	–	N
Vanadium	1	-	2	50	0.03	-	0.03	0.025	-	0.025	HCF-01(8/11/2004)	0.0213	–	N
Zinc	1	-	2	50	0.013	-	0.013	0.025	-	0.025	HCF-01(8/11/2004)	0.0128	–	N
Other														
Bromide	0	-	2	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Chloride	2	-	2	100	558	-	559	–	-	–	HCF-01(3/8/2004)	559	–	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.14-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residentia Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Volatile Organic Compounds																		
Acetone	0	/ 1	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0	/ 1	0	–	0.2	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0	/ 1	0	–	0.1	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0	/ 1	0	–	0.005	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0	/ 1	0	–	0.3	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0	/ 1	0	–	0.3	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromomethane	0	/ 1	0	–	0.005	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0	/ 1	0	–	0.1	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0	/ 1	0	–	0.005	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0	/ 1	0	–	0.005	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0	/ 1	0	–	0.01	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0	/ 1	0	–	0.02	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0	/ 1	0	–	0.005	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0	/ 1	0	–	0.005	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0	/ 1	0	–	0.01	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0	/ 1	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0	/ 1	0	–	0.005	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0	/ 1	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0	/ 1	0	–	0.33	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0	/ 1	0	–	0.02	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0	/ 1	0	–	0.3	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0	/ 1	0	–	0.3	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0	/ 1	0	–	0.02	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0	/ 1	0	–	0.005	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0	/ 1	0	–	0.005	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0	/ 1	0	–	0.005	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0	/ 1	0	–	0.005	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0	/ 1	0	–	0.005	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0	/ 1	0	–	0.005	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0	/ 1	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0	/ 1	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethanol	0	/ 1	0	–	1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Ethyl methacrylate	0	/ 1	0	–	0.02	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0	/ 1	0	–	0.005	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0	/ 1	0	–	0.02	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0	/ 1	0	–	0.3	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0	/ 1	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0	/ 1	0	–	0.005	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0	/ 1	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0	/ 1	0	–	0.3	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0	/ 1	0	–	0.005	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0	/ 1	0	–	0.005	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0	/ 1	0	–	0.005	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0	/ 1	0	–	0.005	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0	/ 1	0	–	0.005	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0	/ 1	0	–	0.02	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0	/ 1	0	–	0.3	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0	/ 1	0	–	0.005	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0	/ 1	0	–	0.01	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0	/ 1	0	–	0.01	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0	/ 1	0	–	0.005	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																		
Benzidine	0	/ 1	0	–	1.7 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0	/ 1	0	–	2	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl butyl phthalate	0	/ 1	0	–	0.3	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0	/ 1	0	–	0.3	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no

Table E.14-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Bis(2-ethylhexyl)phthalate	0 / 1	0	–	0.3	–	3.47E+02 c	1.37E+03 c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0 / 1	0	–	0.3	–	NA n	NA n	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0 / 1	0	–	0.7	–	6.10E+03 n	6.20E+04 n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0 / 1	0	–	0.3	–	NA n	NA n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0 / 1	0	–	0.7	–	1.10E+01 c	3.80E+01 c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0 / 1	0	–	0.3	–	1.83E+02 n	2.05E+03 n	–	–	–	–	–	–	no	no
Diethyl phthalate	0 / 1	0	–	0.3	–	4.89E+04 n	5.47E+05 n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0 / 1	0	–	0.3	–	1.22E+03 n	1.37E+04 n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0 / 1	0	–	2	–	1.22E+02 n	1.37E+03 n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0 / 1	0	–	0.3	–	1.57E+01 c	1.03E+02 c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0 / 1	0	–	0.3	–	6.11E+05 n	6.84E+06 n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0 / 1	0	–	0.3	–	6.11E+03 n	6.84E+04 n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0 / 1	0	–	0.3	–	2.44E+03 n	2.74E+04 n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0 / 1	0	–	0.3	–	6.11E+01 c	2.46E+02 c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0 / 1	0	–	0.3	–	3.04E+00 c	1.20E+01 c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0 / 1	0	–	0.3	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–	no	no
Hexachloroethane	0 / 1	0	–	0.3	–	6.11E+01 n	6.84E+02 n	–	–	–	–	–	–	no	no
Methanamine, n-methyl-n-nitroso	0 / 1	0	–	0.33 ^	–	9.54E-02 c	3.76E-01 c	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0 / 1	0	–	2	–	6.10E+00 n	6.20E+01 n	–	–	–	–	–	–	no	no
2-Nitrophenol	0 / 1	0	–	0.3	–	NA n	NA n	–	–	–	–	–	–	no	no
4-Nitrophenol	0 / 1	0	–	2	–	NA n	NA n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0 / 1	0	–	0.3	–	6.90E-01 c	2.50E+00 c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0 / 1	0	–	0.3	–	9.93E+02 c	3.91E+03 c	–	–	–	–	–	–	no	no
Pentachlorophenol	0 / 1	0	–	2	–	2.98E+01 c	1.00E+02 c	–	–	–	–	–	–	no	no
Phenol	0 / 1	0	–	0.3	–	1.83E+04 n	2.05E+05 n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0 / 1	0	–	0.3	–	6.11E+01 n	6.84E+02 n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0 / 1	0	–	0.3	–	5.12E+03 c	2.02E+04 c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	0 / 1	0	–	0.3	–	3.44E+03 n	3.67E+04 n	–	–	–	–	–	–	no	no
Acenaphthylene	0 / 1	0	–	0.33	–	3.44E+03 n	3.67E+04 n	–	–	–	–	–	–	no	no
Anthracene	0 / 1	0	–	0.3	–	1.72E+04 n	1.83E+05 n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0 / 1	0	–	0.3	–	6.21E+00 c	2.34E+01 c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0 / 1	0	–	0.3	–	6.21E-01 c	2.34E+00 c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0 / 1	0	–	0.3	–	6.21E+00 c	2.34E+01 c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0 / 1	0	–	0.3	–	1.72E+03 n	1.83E+04 n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0 / 1	0	–	0.3	–	6.21E+01 c	2.34E+02 c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0 / 1	0	–	0.3	–	6.21E+02 c	2.34E+03 c	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0 / 1	0	–	0.3	–	6.26E+03 n	9.08E+04 n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0 / 1	0	–	0.3	–	6.21E-01 c	2.34E+00 c	–	–	–	–	–	–	no	no
Fluoranthene	0 / 1	0	–	0.3	–	2.29E+03 n	2.44E+04 n	–	–	–	–	–	–	no	no
Fluorene	0 / 1	0	–	0.3	–	2.29E+03 n	2.44E+04 n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0 / 1	0	–	0.3	–	6.21E+00 c	2.34E+01 c	–	–	–	–	–	–	no	no
Naphthalene	0 / 1	0	–	0.3	–	4.50E+01 c	2.52E+02 c	–	–	–	–	–	–	no	no
Phenanthrene	0 / 1	0	–	0.3	–	1.83E+03 n	2.05E+04 n	–	–	–	–	–	–	no	no
Pyrene	0 / 1	0	–	0.3	–	1.72E+03 n	1.83E+04 n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)															
Total Petroleum Hydrocarbons (TPH)	0 / 1	0	–	13	–	4.40E+02 n	8.90E+02 n	–	–	–	–	–	–	no	no
Explosives															
2,6-Dinitrotoluene	0 / 1	0	–	0.3	–	6.12E+01 n	6.87E+02 n	–	–	–	–	–	–	no	no
Inorganics															
Arsenic	0 / 1	0	–	0.5	YES	3.90E+00 c	1.77E+01 c	–	–	–	–	–	–	no	no
Barium	0 / 1	0	–	100	no	1.56E+04 n	2.24E+05 n	–	–	–	–	–	–	no	no
Cadmium	0 / 1	0	–	2.6	no	7.79E+01 n	1.12E+03 n	–	–	–	–	–	–	no	no
Lead	0 / 1	0	–	26	no	4.00E+02 IEUBK	8.00E+02 IEUBK	–	–	–	–	–	–	no	no
Mercury	0 / 1	0	–	0.08	no	7.71E+00 n	4.99E+01 n	–	–	–	–	–	–	no	no
Selenium	0 / 1	0	–	0.5	no	3.91E+02 n	5.68E+03 n	–	–	–	–	–	–	no	no
Silver	0 / 1	0	–	5.2	no	3.91E+02 n	5.68E+03 n	–	–	–	–	–	–	no	no

Table E.14-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Total Maximum / Screening Level Ratios										NA	NA	NA	NA		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)										NA	NA	NA	NA		
							Target Organ Max/SL Ratios								
							Kidney and Liver				NA		NA		
							Brain				NA		NA		
							Nasal				NA		NA		
							Eyes				NA		NA		
							Skin				NA		NA		
							Lungs				NA		NA		
							Gastrointestinal Tract and Forestomach				NA		NA		
							Whole Body				NA		NA		
							Blood				NA		NA		
							Nervous System				NA		NA		
							Dental				NA		NA		
							Red Blood Cells				NA		NA		
							Glands				NA		NA		
							Fetus				NA		NA		
							Immune System				NA		NA		
							Development				NA		NA		
							Reproduction				NA		NA		
							Bone				NA		NA		
							Not Available/ Not Reported				NA		NA		

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.14-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	0	/	3	0	–	0.1	–	2.63E+05	n	–	–	–	no
Acrolein	0	/	3	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	3	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	3	0	–	0.005	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	3	0	–	0.3	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	3	0	–	0.3	–	3.10E+03	c	–	–	–	no
Bromomethane	0	/	3	0	–	0.005	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	3	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	3	0	–	0.005	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	3	0	–	0.005	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	3	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	3	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	3	0	–	0.005	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	3	0	–	0.005	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	3	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	3	0	–	0.01	–	NA	n	–	–	–	no
Chloroform	0	/	3	0	–	0.005	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	3	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	3	0	–	0.33	–	1.55E+03	n	–	–	–	no
Dibromomethane	0	/	3	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	3	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	3	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	3	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	3	0	–	0.005	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	3	0	–	0.005	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	3	0	–	0.005	–	1.83E+03	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	3	0	–	0.005	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	3	0	–	0.005	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	3	0	–	0.005	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	3	0	–	0.005	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	3	0	–	0.005	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	3	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	3	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	3	0	–	0.005	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	3	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	3	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	3	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	3	0	–	0.005	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	3	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	3	0	–	0.3	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	3	0	–	0.005	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	3	0	–	0.005	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	3	0	–	0.005	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	3	0	–	0.005	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	3	0	–	0.005	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	3	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	3	0	–	0.3	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	3	0	–	0.005	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	3	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	3	0	–	0.01	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	3	0	–	0.005	–	3.13E+03	n	–	–	–	no

Table E.14-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Semi Volatile Organic Compounds													
Benzidine	0	/	3	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/	3	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl butyl phthalate	0	/	3	0	–	0.3	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	3	0	–	0.3	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	1	/	3	33.3	0.46	0.3	–	4.76E+03	n	no	–	9.65E-05	no
4-Bromophenyl phenyl ether	0	/	3	0	–	0.3	–	NA	n	–	–	–	no
4-Chloro-3-methylphenol	0	/	3	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	3	0	–	0.3	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	3	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	3	0	–	0.3	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	3	0	–	0.3	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	3	0	–	0.3	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	3	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	3	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/	3	0	–	0.3	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/	3	0	–	0.3	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/	3	0	–	0.3	–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	3	0	–	0.3	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	3	0	–	0.3	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	3	0	–	0.3	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	3	0	–	0.3	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	3	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	3	0	–	2	–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/	3	0	–	0.3	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	3	0	–	2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	3	0	–	0.3	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	3	0	–	0.3	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	3	0	–	2	–	1.03E+03	c	–	–	–	no
Phenol	0	/	3	0	–	0.3	–	6.88E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	3	0	–	0.3	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	3	0	–	0.3	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	3	0	–	0.3	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	3	0	–	0.33	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	3	0	–	0.3	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	3	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	3	0	–	0.3	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	3	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	3	0	–	0.3	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	3	0	–	0.3	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	3	0	–	0.3	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/	3	0	–	0.3	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	3	0	–	0.3	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	3	0	–	0.3	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	3	0	–	0.3	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	3	0	–	0.3	–	2.13E+02	c	–	–	–	no
Naphthalene	0	/	3	0	–	0.3	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	3	0	–	0.3	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	3	0	–	0.3	–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	1	/	1	100	2,600 !	–	–	NA	n	NA	–	–	no

Table E.14-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Total Petroleum Hydrocarbons (TPH)	1	/	3	33.3	21	!	13	–	NA	n	NA	–	–	no
Explosives														
2,6-Dinitrotoluene	0	/	3	0	–		0.3	–	2.39E+02	n	–	–	–	no
Inorganics														
Arsenic	1	/	3	33.3	0.73		0.52	YES	6.54E+01	n	no	–	1.12E-02	no
Barium	0	/	3	0	–		110	no	4.35E+03	n	–	–	–	no
Cadmium	0	/	3	0	–		2.7	no	3.09E+02	n	–	–	–	no
Lead	0	/	3	0	–		27	no	8.00E+02	IEUBK	–	–	–	no
Mercury	0	/	3	0	–		0.1	no	6.36E+01	n	–	–	–	no
Selenium	0	/	3	0	–		0.52	no	1.55E+03	n	–	–	–	no
Silver	0	/	3	0	–		5.3	no	1.55E+03	n	–	–	–	no
Total Maximum / Screening Level Ratios												NA	0.01	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												NA	0.01	

Target Organ Max/SL Ratios	
Kidney and Liver	0.0001
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.01
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	NA
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.
[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.14-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	3	/	7	43	0.6	yes
Acrolein	0	/	7	0	–	no
Acrylonitrile	0	/	7	0	–	no
Benzene	2	/	7	29	0.17	yes
Bis(2-chloroethyl)ether	0	/	7	0	–	no
Bis(2-chloroisopropyl)ether	0	/	7	0	–	no
Bromodichloromethane	0	/	1	0	–	no
Bromomethane	0	/	8	0	–	no
2-Butanone	0	/	7	0	–	no
Carbon disulfide	1	/	7	14	0.0065	yes
Carbon tetrachloride	0	/	8	0	–	no
CFC-11	0	/	8	0	–	no
CFC-12	0	/	7	0	–	no
Chlorinated fluorocarbon (Freon 113)	0	/	1	0	–	no
Chlorobenzene	0	/	8	0	–	no
Chloroethane	0	/	8	0	–	no
2-Chloroethyl vinyl ether	0	/	8	0	–	no
Chloroform	0	/	8	0	–	no
Chloromethane	0	/	7	0	–	no
2-Chlorophenol	0	/	7	0	–	no
Dibromomethane	0	/	7	0	–	no
1,2-Dichlorobenzene	0	/	7	0	–	no
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	/	1	0	–	no
1,4-Dichlorobenzene	0	/	8	0	–	no
1,4 Dichloro-2-butene	0	/	7	0	–	no
1,1-Dichloroethane	2	/	8	25	0.033	yes
1,2-Dichloroethane	0	/	8	0	–	no
1,1-Dichloroethylene	0	/	8	0	–	no
trans-1,2-Dichloroethene	0	/	8	0	–	no
Dichloromethane	0	/	8	0	–	no
1,2-Dichloropropane	0	/	8	0	–	no
cis-1,3-Dichloropropene	0	/	7	0	–	no
trans-1,3-Dichloropropene	0	/	8	0	–	no
Ethyl methacrylate	0	/	7	0	–	no
Ethylbenzene	3	/	7	43	4.1	yes
Iodomethane	0	/	7	0	–	no
m-Dichlorobenzene	0	/	7	0	–	no
Methyl n-butyl ketone	0	/	7	0	–	no
Methylbenzene	0	/	7	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	7	0	–	no
Nitrobenzene	0	/	7	0	–	no
Styrene (monomer)	0	/	7	0	–	no
Tetrachloroethene	0	/	7	0	–	no
1,1,2,2-Tetrachloroethane	0	/	8	0	–	no
1,1,1-Trichloroethane	0	/	8	0	–	no
1,1,2-Trichloroethane	0	/	8	0	–	no
1,2,3-Trichloropropane	0	/	7	0	–	no
1,2,4-Trichlorobenzene	0	/	7	0	–	no
Trichloroethylene	0	/	7	0	–	no
Vinyl acetate	0	/	7	0	–	no
Vinyl chloride	0	/	8	0	–	no
Xylenes	1	/	7	14	0.12	yes
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	7	0	–	no
Acenaphthylene	0	/	7	0	–	no
Anthracene	0	/	7	0	–	no
2-Chloronaphthalene	0	/	7	0	–	no
Fluorene	2	/	7	29	2	yes
Naphthalene	3	/	7	43	14	yes
Phenanthrene	4	/	7	57	18	yes

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

Table E.14-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway.

Table E.14-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds										
Acetone	0 / 2	0	–	0.01	2.20E+02	n	–	–	–	no
Acetophenone	0 / 2	0	–	5	8.00E+02	n	–	–	–	no
Acrylonitrile	0 / 2	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	2 / 2	100	0.00292	–	1.40E-02	c	no	2.09E-01	–	no
Bis(2-chloroethyl)ether	0 / 2	0	–	5 ^	1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0 / 2	0	–	5	NA	c	–	–	–	no
Bromobenzene	0 / 2	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0 / 2	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0 / 2	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0 / 2	0	–	0.005	4.40E+02	n	–	–	–	no
n-Butylbenzene	2 / 2	100	0.00168	–	2.60E-01	n	no	–	6.46E-03	no
sec-Butylbenzene	2 / 2	100	0.00615	–	2.50E-01	n	no	–	2.46E-02	no
tert-Butylbenzene	0 / 2	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0 / 2	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0 / 2	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	0 / 2	0	–	0.001	1.80E-01	n	–	–	–	no
CFC-12	0 / 2	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0 / 2	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0 / 2	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0 / 2	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0 / 2	0	–	0.005	NA	n	–	–	–	no
Chloroform	0 / 2	0	–	0.001	8.00E-02	c	–	–	–	no
Chloromethane	0 / 2	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorophenol	0 / 2	0	–	5 ^	1.10E+00	n	–	–	–	no
2-Chlorotoluene	0 / 2	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0 / 2	0	–	0.001	NA	n	–	–	–	no
Cymene	0 / 2	0	–	0.001	NA	n	–	–	–	no
Dibenzofuran	2 / 2	100	0.00871 !	–	NA	n	NA	–	–	no
1,2-Dibromoethane	0 / 2	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0 / 2	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0 / 2	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0 / 2	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0 / 2	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	0 / 2	0	–	0.001	2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0 / 2	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0 / 2	0	–	0.001	1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0 / 2	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0 / 2	0	–	0.001	1.80E-01	n	–	–	–	no
Dichloromethane	0 / 2	0	–	0.005	5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0 / 2	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0 / 2	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0 / 2	0	–	0.001	NA	n	–	–	–	no

Table E.14-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
1,1-Dichloropropene	0 / 2	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0 / 2	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0 / 2	0	–	0.001	NA	c	–	–	–	no
Ethylbenzene	0 / 2	0	–	0.001	7.00E-01	c	–	–	–	no
Iodomethane	0 / 2	0	–	0.005	NA	n	–	–	–	no
Isopropylbenzene	2 / 2	100	0.00668	–	8.40E-03	n	no	–	7.95E-01	no
m-Dichlorobenzene	0 / 2	0	–	0.001	8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0 / 2	0	–	0.005	NA	n	–	–	–	no
Methylbenzene	0 / 2	0	–	0.001	1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0 / 2	0	–	0.005	1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0 / 2	0	–	0.001	1.20E+02	c	–	–	–	no
Nitrobenzene	0 / 2	0	–	5 ^	2.00E+00	c	–	–	–	no
n-Propylbenzene	0 / 2	0	–	0.001	3.20E-01	n	–	–	–	no
Styrene (monomer)	0 / 2	0	–	0.001	8.90E+00	n	–	–	–	no
Tetrachloroethene	0 / 2	0	–	0.001	1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0 / 2	0	–	0.001	3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0 / 2	0	–	0.001	3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0 / 2	0	–	0.001	3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0 / 2	0	–	0.001	4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0 / 2	0	–	0.005	NA	n	–	–	–	no
1,2,3-Trichloropropane	0 / 2	0	–	0.001	2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0 / 2	0	–	0.005	3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0 / 2	0	–	0.001	2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0 / 2	0	–	0.001	2.50E-02	n	–	–	–	no
Trichloroethylene	0 / 2	0	–	0.001	5.00E-03	c	–	–	–	no
Vinyl chloride	0 / 2	0	–	0.001	2.50E-03	c	–	–	–	no
m,p-Xylene	0 / 2	0	–	0.001	2.30E+01	n	–	–	–	no
o-Xylene	0 / 2	0	–	0.001	3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds										
n-Nitrosodi-n-butylamine	0 / 2	0	–	5 ^	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	0 / 2	0	–	5	NA	n	–	–	–	no
Acenaphthylene	0 / 2	0	–	5	NA	n	–	–	–	no
Anthracene	0 / 2	0	–	5	NA	n	–	–	–	no
1-Chloronaphthalene	0 / 2	0	–	5	NA	n	–	–	–	no
2-Chloronaphthalene	0 / 2	0	–	5	NA	n	–	–	–	no
Fluorene	0 / 2	0	–	5	NA	n	–	–	–	no
1-Methylnaphthalene	2 / 2	100	0.0816 !	–	NA	c	NA	–	–	no
2-Methylnaphthalene	2 / 2	100	0.0917	–	3.30E+00	n	no	–	2.78E-02	no
Naphthalene	2 / 2	100	0.0703	–	1.50E-01	c	no	4.69E-01	–	no
Phenanthrene	2 / 2	100	0.0113 !	–	NA	n	NA	–	–	no
Total Maximum / Screening Level Ratios								0.7	0.9	

Table E.14-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)							7.E-06	0.9	
					Target Organ Max/SL Ratios				
					Kidney and Liver			0.8	
					Brain			NA	
					Nasal			NA	
					Eyes			NA	
					Skin			NA	
					Lungs			0.03	
					Gastrointestinal Tract and Forestomach			NA	
					Whole Body			NA	
					Blood			NA	
					Nervous System			NA	
					Dental			NA	
					Red Blood Cells			NA	
					Glands			0.8	
					Fetus			NA	
					Immune System			NA	
					Development			NA	
					Reproduction			NA	
					Bone			NA	
					Not Available/ Not Reported			0.03	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.14-HHRA-5
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	6.00E-01 m	–
Benzene	no	no	no	yes	no	–	–	1.70E-01 m	–
Carbon disulfide	no	no	no	yes	no	–	–	6.50E-03 m	–
1,1-Dichloroethane	no	no	no	yes	no	–	–	3.30E-02 m	–
Ethylbenzene	no	no	no	yes	no	–	–	4.10E+00 m	–
Xylenes	no	no	no	yes	no	–	–	1.20E-01 m	–
Polycyclic Aromatic Hydrocarbons									
Fluorene	no	no	no	yes	no	–	–	2.00E+00 m	–
Naphthalene	no	no	no	yes	no	–	–	1.40E+01 m	–
Phenanthrene	no	no	no	yes	no	–	–	1.80E+01 m	–

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.14-HHRA-6
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
67641	6.0E+02	Acetone
71432	1.7E+02	Benzene
75150	6.5E+00	Carbon disulfide
75343	3.3E+01	1,1-Dichloroethane
100414	4.1E+03	Ethylbenzene
1330207	1.2E+02	Xylenes (total)
86737	2.0E+03	Fluorene
91203	1.4E+04	Naphthalene
85018	1.8E+04	Phenanthrene

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G45)					
16.7	15	762	0	762			SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SIL	1.55	0.44	0.26	0.002					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.14-HHRA-7
Intercalculations
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	4.02E+03	1.65E+00	2.71E-03	4.20E+06	6.81E-05	2.74E-01
Benzene	8,053	3.75E-03	1.58E-01	1.77E-04	1.51E-03	1.51E-03	8.82E+04	1.65E+00	1.51E-03	7.57E+11	6.81E-05	6.01E+00
Carbon disulfide	6,630	2.19E-02	9.22E-01	1.77E-04	1.78E-03	1.78E-03	1.64E+04	1.65E+00	1.78E-03	1.18E+10	6.81E-05	1.12E+00
1,1-Dichloroethane	7,376	3.92E-03	1.65E-01	1.77E-04	1.27E-03	1.27E-03	2.18E+04	1.65E+00	1.27E-03	1.20E+14	6.81E-05	1.48E+00
Ethylbenzene	10,078	4.83E-03	2.03E-01	1.77E-04	1.29E-03	1.29E-03	9.07E+05	1.65E+00	1.29E-03	8.85E+13	6.81E-05	6.18E+01
Xylenes (total)	10,158	4.06E-03	1.71E-01	1.77E-04	1.22E-03	1.22E-03	4.03E+04	1.65E+00	1.22E-03	4.34E+14	6.81E-05	2.75E+00
Fluorene	16,167	2.90E-05	1.22E-03	1.77E-04	9.97E-04	9.97E-04	8.79E+01	1.65E+00	9.97E-04	9.69E+17	6.81E-05	5.99E-03
Naphthalene	12,844	2.59E-04	1.09E-02	1.77E-04	1.05E-03	1.05E-03	3.66E+04	1.65E+00	1.05E-03	1.21E+17	6.81E-05	2.49E+00
Phenanthrene	13,840	1.19E-05	5.02E-04	1.77E-04	1.61E-03	1.61E-03	1.52E+02	1.65E+00	1.61E-03	1.42E+11	6.81E-05	1.03E-02

Table E.14-HHRA-8
Estimates of Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Acetone	6.00E-01	m	2.74E-01
Benzene	1.70E-01	m	6.01E+00
Carbon disulfide	6.50E-03	m	1.12E+00
1,1-Dichloroethane	3.30E-02	m	1.48E+00
Ethylbenzene	4.10E+00	m	6.18E+01
Xylenes	1.20E-01	m	2.75E+00
Fluorene	2.00E+00	m	5.99E-03
Naphthalene	1.40E+01	m	2.49E+00
Phenanthrene	1.80E+01	m	1.03E-02

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

$\mu g/m^3$ Micrograms per cubic meter.
mg/kg Milligrams per kilogram.
m Maximum.

[a] EPCs are presented in table Table E.14-HHRA-5.
[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.14-HHRA-9
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	2.74E-01	m	NA	NA	–	3.1E+01	1.8E-06	<1%
Benzene	6.01E+00	m	7.80E-03	3.4E-06	95%	3.0E-02	4.1E-02	18%
Carbon disulfide	1.12E+00	m	NA	NA	–	7.0E-01	3.3E-04	<1%
1,1-Dichloroethane	1.48E+00	m	1.60E-03	1.7E-07	5%	NA	NA	–
Ethylbenzene	6.18E+01	m	NA	NA	–	1.0E+00	1.3E-02	6%
Xylenes	2.75E+00	m	NA	NA	–	1.0E-01	5.6E-03	2%
Fluorene	5.99E-03	m	NA	NA	–	NA	NA	–
Naphthalene	2.49E+00	m	NA	NA	–	3.0E-03	1.7E-01	74%
Phenanthrene	1.03E-02	m	NA	NA	–	NA	NA	–
			Total ELCR	4E-06	NA	Total HI	0.2	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	NA	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.006	HI (nasal, lung) =	0.2
NA - Not available	HI (blood) =	0.04	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	0.01	HI (NA, NR) =	0.000002

[a] From Table E.14-HHRA-8.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m^3	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	$\mu g/m^3$	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.14-HHRA-10
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	2.74E-01	m	NA	NA	–	3.1E+01	8.5E-06	<1%
Benzene	6.01E+00	m	7.80E-03	1.9E-05	95%	3.0E-02	1.9E-01	18%
Carbon disulfide	1.12E+00	m	NA	NA	–	7.0E-01	1.5E-03	<1%
1,1-Dichloroethane	1.48E+00	m	1.60E-03	9.8E-07	5%	NA	NA	–
Ethylbenzene	6.18E+01	m	NA	NA	–	1.0E+00	5.9E-02	6%
Xylenes	2.75E+00	m	NA	NA	–	1.0E-01	2.6E-02	2%
Fluorene	5.99E-03	m	NA	NA	–	NA	NA	–
Naphthalene	2.49E+00	m	NA	NA	–	3.0E-03	8.0E-01	74%
Phenanthrene	1.03E-02	m	NA	NA	–	NA	NA	–
			Total ELCR	2E-05	100%	Total HI	1	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	NA	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.03	HI (nasal, lung) =	0.8
NA - Not available	HI (blood) =	0.2	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	0.06	HI (NA, NR) =	0.000008

[a] From Table E.14-HHRA-8.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:
ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.14-HHRA-11
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 147 (SWMU 147)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Vapor Migration from Soil to Indoor Air	4E-06	0.2
TOTAL SITE RISKS:	4E-06	0.2
Hypothetical Future Resident Receptor (Adult and Child)		
Vapor Migration from Soil to Indoor Air	2E-05	1
TOTAL SITE RISKS:	2E-05	1

Table E.14.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	1	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	1	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	1	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	1	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	1	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	1	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	1	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	1	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	1	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	1	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	1	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	1	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	1	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	1	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	1	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	1	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	1	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	1	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	1	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	1	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	1	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	1	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	1	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	1	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	1	0	–	0.005		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	1	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	1	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	1	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	1	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	1	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	1	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	1	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	1	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	1	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	1	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	1	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	1	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	1	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	1	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	1	0	–	0.02		no	3.36	*R5*	NA	no	ND

Table E.14.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,2,4-Trichlorobenzene	0	/	1	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	1	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	1	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	1	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	1	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	1	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	1	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	1	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	1	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	1	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	1	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	1	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	1	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	1	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	1	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	1	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	1	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	1	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	^	no	0.0000321	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	1	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	1	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	1	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	1	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	1	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	1	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	1	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	1	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	1	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	1	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	1	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	1	0	–	0.3		no	4.73	*R5*	NA	no	ND

Table E.14.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
2-Chloronaphthalene	0	/	1	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	1	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	1	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	1	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	1	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	0	/	1	0	–	0.5		YES	18	*EcoSSL*	NA	no	ND
Barium	0	/	1	0	–	100		no	330	*EcoSSL*	NA	no	ND
Cadmium	0	/	1	0	–	2.6	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	0	/	1	0	–	26	^	no	11	*EcoSSL*	NA	no	ND
Mercury	0	/	1	0	–	0.08		no	0.1	*R4*	NA	no	ND
Selenium	0	/	1	0	–	0.5		no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	1	0	–	5.2	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.14.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	3	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	3	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	3	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	3	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	3	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	3	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	3	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	3	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	3	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	3	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	3	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	3	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	3	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	3	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	3	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	3	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	3	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	3	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	3	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	3	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	3	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	3	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	3	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	3	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	3	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	3	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	3	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	3	0	–	0.005		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	3	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	3	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	3	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	3	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	3	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	3	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	3	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	3	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	3	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	3	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	3	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	3	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	3	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	3	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	3	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	3	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	3	0	–	0.02		no	3.36	*R5*	NA	no	ND

Table E.14.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,2,4-Trichlorobenzene	0	/	3	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	3	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	3	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	3	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	3	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	3	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	3	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	3	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	3	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	1	/	3	33.3	0.46	0.3		no	0.1	*R4*	5	**YES**	HQ > 1
4-Bromophenyl phenyl ether	0	/	3	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	3	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	3	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	3	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	3	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	3	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	3	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	3	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	3	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	3	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	3	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	3	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	3	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	3	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	3	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	3	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	3	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	3	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	3	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	3	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	3	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	3	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	3	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	3	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	3	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	3	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	3	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	3	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	3	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	3	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	3	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	3	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	3	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	3	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	3	0	–	0.3		no	4.73	*R5*	NA	no	ND

Table E.14.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
2-Chloronaphthalene	0	/	3	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	3	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	3	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	3	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	3	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	3	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	3	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	3	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	1	/	1	100	2,600	–		no	10,000	*API*	0.3	no	HQ ≤ 1
Petroleum hydrocarbons	1	/	3	33.3	21	13		no	10,000	*API*	0.002	no	HQ ≤ 1
Total Petroleum Hydrocarbons (TPH)	1	/	3	33.3	21	13		no	10,000	*API*	0.002	no	HQ ≤ 1
Explosives													
2,6-Dinitrotoluene	0	/	3	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	1	/	3	33.3	0.73	0.52		YES	18	*EcoSSL*	0.04	no	≤ BKGD
Barium	0	/	3	0	–	110		no	330	*EcoSSL*	NA	no	ND
Cadmium	0	/	3	0	–	2.7	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	0	/	3	0	–	27	^	no	11	*EcoSSL*	NA	no	ND
Mercury	0	/	3	0	–	0.1		no	0.1	*R4*	NA	no	ND
Selenium	0	/	3	0	–	0.52		no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	3	0	–	5.3	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.14.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Volatile Organic Compounds								
Bis(2-ethylhexyl)phthalate	0.46	m	0.1	*R4*	5	**YES**	**HQ > 1**	no

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.15.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	10	0	–	-	–	0.0224	-	0.0249	–	0.0119	–
Acrolein	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Acrylonitrile	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–
Benzene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Bis(2-chloroethyl)ether	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Bis(2-chloroisopropyl)ether	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Bromodichloromethane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Bromomethane	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–
2-Butanone	0	-	10	0	–	-	–	0.0224	-	0.0249	–	0.0119	–
Carbon disulfide	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Carbon tetrachloride	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
CFC-11	0	-	10	0	–	-	–	0.00577	-	0.0125	–	0.00566	–
Chlorobenzene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Chlorodibromomethane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Chloroethane	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–
2-Chloroethyl vinyl ether	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–
Chloroform	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Chloromethane	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–
2-Chlorophenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Dibenzofuran	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Dibromomethane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
1,2-Dichlorobenzene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
1,4-Dichlorobenzene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
1,4 Dichloro-2-butene	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–
1,1-Dichloroethane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
1,2-Dichloroethane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
1,1-Dichloroethylene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
cis-1,2-Dichloroethene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
trans-1,2-Dichloroethene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Dichloromethane	1	-	9	11.1	0.00846	-	0.00846	0.00583	-	0.00623	SWMU 148 SB-06(11/29/1993)	0.00361	–
1,2-Dichloropropane	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
cis-1,3-Dichloropropene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
trans-1,3-Dichloropropene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Ethyl methacrylate	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Ethylbenzene	0	-	10	0	–	-	–	0.00561	-	0.00623	–	0.00298	–
Iodomethane	0	-	10	0	–	-	–	0.0112	-	0.0125	–	0.00595	–

Table E.15.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
m-Dichlorobenzene	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
Methyl n-butyl ketone	0 - 10	0	–	–	0.0224	0.0249	–	0.0119	–
Methylbenzene	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
4-Methyl-2-pentanone (MIBK)	0 - 10	0	–	–	0.0224	0.0249	–	0.0119	–
Nitrobenzene	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Styrene (monomer)	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
Tetrachloroethene	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
1,1,2,2-Tetrachloroethane	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
1,1,1-Trichloroethane	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
1,1,2-Trichloroethane	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
1,2,3-Trichloropropane	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
1,2,4-Trichlorobenzene	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Trichloroethylene	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
Vinyl acetate	0 - 10	0	–	–	0.0224	0.0249	–	0.0119	–
Vinyl chloride	0 - 10	0	–	–	0.0112	0.0125	–	0.00595	–
Xylenes	0 - 10	0	–	–	0.00561	0.00623	–	0.00298	–
Semi Volatile Organic Compounds									
Benzidine	0 - 10	0	–	–	1.79	1.99	–	0.952	–
Benzoic acid	0 - 10	0	–	–	1.79	1.99	–	0.952	–
Benzyl alcohol	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Benzyl butyl phthalate	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Bis(2-chloroethoxy)methane	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Bis(2-ethylhexyl)phthalate	0 - 10	0	–	–	0.37	0.411	–	0.196	–
4-Bromophenyl phenyl ether	0 - 10	0	–	–	0.37	0.411	–	0.196	–
p-Chloroaniline	0 - 10	0	–	–	0.00577	0.411	–	0.178	–
4-Chloro-3-methylphenol	0 - 10	0	–	–	0.37	0.411	–	0.196	–
4-Chlorophenyl phenyl ether	0 - 10	0	–	–	0.37	0.411	–	0.196	–
3,3'-Dichlorobenzidine	0 - 10	0	–	–	0.37	0.411	–	0.196	–
2,4-Dichlorophenol	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Diethyl phthalate	0 - 10	0	–	–	0.37	0.411	–	0.196	–
2,4-Dimethylphenol	0 - 10	0	–	–	0.37	0.411	–	0.196	–
2,4-Dinitrophenol	0 - 10	0	–	–	1.79	1.99	–	0.952	–
2,4-Dinitrotoluene	0 - 10	0	–	–	0.37	0.411	–	0.196	–
1,2-Diphenylhydrazine	0 - 10	0	–	–	1.79	1.99	–	0.952	–
Dimethyl phthalate	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Di-n-butyl phthalate	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Di-n-octyl phthalate	0 - 10	0	–	–	0.37	0.411	–	0.196	–
Diphenylamine	0 - 10	0	–	–	1.12	1.24	–	0.594	–

Table E.15.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Hexachloro-1,3-butadiene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Hexachlorobenzene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Hexachlorocyclopentadiene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Hexachloroethane	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2-Methyl-4,6-dinitrophenol	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
2-Methylphenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
4-Methylphenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2-Nitroaniline	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
3-Nitroaniline	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
p-Nitroaniline	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
2-Nitrophenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
4-Nitrophenol	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
n-Nitrosodi-n-propylamine	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
n-Nitrosodiphenylamine	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Pentachlorophenol	0	-	10	0	–	-	–	1.79	-	1.99	–	0.952	–
Phenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Tribromomethane	0	-	10	0	–	-	–	0.00561	-	0.00846	–	0.00311	–
2,4,5-Trichlorophenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2,4,6-Trichlorophenol	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Acenaphthylene	0	-	9	0	–	-	–	0.381	-	0.411	–	0.198	–
Anthracene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Benzo(a)anthracene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Benzo(a)pyrene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Benzo(b)fluoranthene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Benzo(g,h,i)perylene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Benzo(k)fluoranthene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
1,2-Benzphenanthracene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
1-Chloronaphthalene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2-Chloronaphthalene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Dibenz(a,h)anthracene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Fluoranthene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Fluorene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Indeno(1,2,3-cd)pyrene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
2-Methylnaphthalene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Naphthalene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–

Table E.15.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Phenanthrene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Pyrene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	0	-	10	0	–	-	–	33.6	-	37.3	–	18	–
Explosives													
2,6-Dinitrotoluene	0	-	10	0	–	-	–	0.37	-	0.411	–	0.196	–
Inorganics													
Arsenic	6	-	10	60	2.92	-	8.56	2.96	-	3.12	HMW-43(11/17/1993)	3.32	4.941
Barium	10	-	10	100	47.4	-	112	–	-	–	SWMU 148 SB-06(11/29/1993)	86.2	97.61
Cadmium	0	-	10	0	–	-	–	1.12	-	6.23	–	2.47	–
Chromium	1	-	13	7.69	6.4	-	6.4	5.97	-	31.2	HMW-43(11/17/1993)	10.8	–
Chromium (Hexavalent)	0	-	12	0	–	-	–	1.08	-	1.25	–	0.6	–
Lead	9	-	10	90	3.65	-	8.17	2.8	-	2.8	SWMU 148 SB-01(11/29/1993)	5.19	6.306
Mercury	2	-	10	20	0.0258	-	0.0474	0.0233	-	0.0249	SWMU 148 SB-07(11/29/1993)	0.0169	–
Selenium	0	-	10	0	–	-	–	2.8	-	3.12	–	1.5	–
Silver	4	-	10	40	10.8	-	72.4	14.8	-	31.2	SWMU 148 SB-08(11/29/1993)	26.1	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.15.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	4	-	37	10.8	0.0374	-	0.42	0.0224	-	0.1	141B9(5/1/1992)	0.0379	–
Acrolein	0	-	37	0	–	-	–	0.00561	-	0.2	–	0.0216	–
Acrylonitrile	0	-	37	0	–	-	–	0.0112	-	0.1	–	0.0148	–
Benzene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Bis(2-chloroethyl)ether	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Bis(2-chloroisopropyl)ether	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Bromodichloromethane	0	-	30	0	–	-	–	0.00561	-	0.0113	–	0.00331	–
Bromomethane	0	-	37	0	–	-	–	0.005	-	0.0226	–	0.00584	–
2-Butanone	0	-	37	0	–	-	–	0.0224	-	0.1	–	0.0202	–
Carbon disulfide	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Carbon tetrachloride	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
CFC-11	0	-	37	0	–	-	–	0.00577	-	0.0226	–	0.00607	–
CFC-12	0	-	7	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Chlorodibromomethane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Chloroethane	0	-	37	0	–	-	–	0.01	-	0.0226	–	0.00631	–
2-Chloroethyl vinyl ether	0	-	37	0	–	-	–	0.01	-	0.0226	–	0.00631	–
Chloroform	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Chloromethane	0	-	37	0	–	-	–	0.01	-	0.0226	–	0.00631	–
2-Chlorophenol	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Dibenzofuran	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
Dibromomethane	0	-	37	0	–	-	–	0.00561	-	0.02	–	0.00457	–
1,2-Dichlorobenzene	0	-	37	0	–	-	–	0.00561	-	0.3	–	0.0311	–
1,4-Dichlorobenzene	0	-	37	0	–	-	–	0.00561	-	0.3	–	0.0311	–
1,4 Dichloro-2-butene	0	-	37	0	–	-	–	0.0112	-	0.0226	–	0.00726	–
1,1-Dichloroethane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
1,2-Dichloroethane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
1,1-Dichloroethylene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
cis-1,2-Dichloroethene	0	-	30	0	–	-	–	0.00561	-	0.0113	–	0.00331	–
trans-1,2-Dichloroethene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Dichloromethane	4	-	34	11.8	0.00755	-	0.009	0.005	-	0.00693	SWMU 148 SB-05(11/29/1993)	0.00362	–
1,2-Dichloropropane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
cis-1,3-Dichloropropene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
trans-1,3-Dichloropropene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Ethanol	0	-	7	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	37	0	–	-	–	0.00561	-	0.02	–	0.00457	–

Table E.15.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Ethylbenzene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Iodomethane	0	-	37	0	–	-	–	0.0112	-	0.0226	–	0.00726	–
m-Dichlorobenzene	0	-	37	0	–	-	–	0.00561	-	0.3	–	0.0311	–
Methyl n-butyl ketone	0	-	37	0	–	-	–	0.0224	-	0.05	–	0.0155	–
Methylbenzene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
4-Methyl-2-pentanone (MIBK)	0	-	37	0	–	-	–	0.0224	-	0.05	–	0.0155	–
Nitrobenzene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Styrene (monomer)	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Tetrachloroethene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
1,1,2,2-Tetrachloroethane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
1,1,1-Trichloroethane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
1,1,2-Trichloroethane	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
1,2,3-Trichloropropane	0	-	37	0	–	-	–	0.00561	-	0.02	–	0.00457	–
1,2,4-Trichlorobenzene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Trichloroethylene	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Vinyl acetate	0	-	37	0	–	-	–	0.01	-	0.0452	–	0.0117	–
Vinyl chloride	0	-	37	0	–	-	–	0.01	-	0.0226	–	0.00631	–
Xylenes	0	-	37	0	–	-	–	0.005	-	0.0113	–	0.00316	–
Semi Volatile Organic Compounds													
Benzidine	0	-	37	0	–	-	–	1.7	-	2.22	–	0.979	–
Benzoic acid	0	-	37	0	–	-	–	1.79	-	2.22	–	1.01	–
Benzyl alcohol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
Benzyl butyl phthalate	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Bis(2-chloroethoxy)methane	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Bis(2-ethylhexyl)phthalate	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
4-Bromophenyl phenyl ether	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
p-Chloroaniline	0	-	30	0	–	-	–	0.00577	-	0.458	–	0.188	–
4-Chloro-3-methylphenol	0	-	37	0	–	-	–	0.37	-	0.7	–	0.235	–
4-Chlorophenyl phenyl ether	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
3,3'-Dichlorobenzidine	0	-	37	0	–	-	–	0.37	-	0.7	–	0.235	–
2,4-Dichlorophenol	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Diethyl phthalate	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
2,4-Dimethylphenol	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
2,4-Dinitrophenol	0	-	37	0	–	-	–	1.79	-	2.22	–	1.01	–
2,4-Dinitrotoluene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
1,2-Diphenylhydrazine	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
Dimethyl phthalate	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Di-n-butyl phthalate	1	-	37	2.7	0.592	-	0.592	0.3	-	0.458	SWMU 148 SB-02(11/29/1993)	0.207	–

Table E.15.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Di-n-octyl phthalate	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Diphenylamine	0	-	30	0	–	-	–	1.12	-	1.39	–	0.629	–
Hexachloro-1,3-butadiene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Hexachlorobenzene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Hexachlorocyclopentadiene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Hexachloroethane	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Methanamine, n-methyl-n-nitroso	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	37	0	–	-	–	1.79	-	2.22	–	1.01	–
2-Methylphenol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
4-Methylphenol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
2-Nitroaniline	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
3-Nitroaniline	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
p-Nitroaniline	0	-	30	0	–	-	–	1.79	-	2.22	–	1.01	–
2-Nitrophenol	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
4-Nitrophenol	0	-	37	0	–	-	–	1.79	-	2.22	–	1.01	–
n-Nitrosodi-n-propylamine	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
n-Nitrosodiphenylamine	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Pentachlorophenol	0	-	37	0	–	-	–	1.79	-	2.22	–	1.01	–
Phenol	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Tribromomethane	0	-	30	0	–	-	–	0.00561	-	0.0113	–	0.00336	–
2,4,5-Trichlorophenol	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
2,4,6-Trichlorophenol	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Acenaphthylene	0	-	34	0	–	-	–	0.3	-	0.458	–	0.197	–
Anthracene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Benzo(a)anthracene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Benzo(a)pyrene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Benzo(b)fluoranthene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Benzo(g,h,i)perylene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Benzo(k)fluoranthene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
1,2-Benzphenanthracene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
1-Chloronaphthalene	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
2-Chloronaphthalene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Dibenz(a,h)anthracene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Fluoranthene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Fluorene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–

Table E.15.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Indeno(1,2,3-cd)pyrene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
2-Methylnaphthalene	0	-	30	0	–	-	–	0.37	-	0.458	–	0.208	–
Naphthalene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Phenanthrene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Pyrene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–
Pesticides													
Aldrin	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
alpha-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
beta-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Camphechlor	0	-	6	0	–	-	–	0.067	-	0.067	–	0.0335	–
Chlordane	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
4,4-DDD	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDE	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDT	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
delta-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Dieldrin	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan I	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Endosulfan II	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan sulfate	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin aldehyde	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor epoxide	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	7	0	–	-	–	10	-	13	–	5.21	–
Total Petroleum Hydrocarbons (TPH)	0	-	37	0	–	-	–	10	-	41.6	–	16.3	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1232	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1242	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1254	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1260	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1016	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1248	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–
Explosives													
2,6-Dinitrotoluene	0	-	37	0	–	-	–	0.3	-	0.458	–	0.197	–

Table E.15.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Inorganics													
Arsenic	17	-	36	47.2	0.59	-	9.64	0.42	-	3.47	HMW-43(11/17/1993)	2.5	3.097
Barium	30	-	36	83.3	36	-	179	88	-	110	HMW-43(11/17/1993)	78.3	90.13
Cadmium	0	-	36	0	–	-	–	1.1	-	12.8	–	2.52	–
Chromium	2	-	38	5.26	6.4	-	19.3	1.28	-	34.7	HMW-43(11/17/1993)	12.2	–
Chromium (Hexavalent)	0	-	36	0	–	-	–	1.08	-	6.41	–	0.705	–
Lead	15	-	36	41.7	3.65	-	14.7	1.28	-	27	HMW-43(11/17/1993)	5.26	5.558
Mercury	3	-	36	8.33	0.0258	-	0.0474	0.0227	-	0.1	SWMU 148 SB-07(11/29/1993)	0.0215	–
Selenium	0	-	36	0	–	-	–	0.005	-	3.47	–	1.32	–
Silver	12	-	36	33.3	8.84	-	74.8	2.1	-	34.7	SWMU 148 SB-03(11/29/1993)	21.8	26.86

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	4	-	44	9.09	0.0374	-	0.42	0.0224	-	0.1	141B9(5/1/1992)	0.039	–	Y
Acetophenone	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
Acrolein	0	-	39	0	–	-	–	0.00561	-	0.2	–	0.0231	–	Y
Acrylonitrile	0	-	44	0	–	-	–	0.01	-	0.1	–	0.0143	–	Y
Benzene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Bis(2-chloroethyl)ether	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
Bis(2-chloroisopropyl)ether	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
Bromobenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromodichloromethane	0	-	36	0	–	-	–	0.00561	-	0.0113	–	0.00354	–	Y
Bromomethane	0	-	44	0	–	-	–	0.005	-	0.05	–	0.00796	–	Y
2-Butanone	0	-	44	0	–	-	–	0.0224	-	0.1	–	0.0213	–	Y
tert-Butyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
n-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
sec-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
tert-Butylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon disulfide	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Carbon tetrachloride	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
CFC-11	0	-	44	0	–	-	–	0.00577	-	0.0226	–	0.00594	–	Y
CFC-12	0	-	13	0	–	-	–	0.01	-	0.02	–	0.00808	–	Y
Chlorobenzene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Chlorobromomethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorodibromomethane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	N
Chloroethane	0	-	44	0	–	-	–	0.01	-	0.0226	–	0.00614	–	Y
2-Chloroethyl vinyl ether	0	-	44	0	–	-	–	0.01	-	0.05	–	0.00841	–	Y
Chloroform	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Chloromethane	0	-	44	0	–	-	–	0.01	-	0.0226	–	0.00614	–	Y
2-Chlorophenol	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
2-Chlorotoluene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
4-Chlorotoluene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Cymene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibenzofuran	0	-	36	0	–	-	–	0.25	-	0.458	–	0.197	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–	N
1,2-Dibromoethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibromomethane	0	-	44	0	–	-	–	0.00561	-	0.02	–	0.00472	–	Y
1,2-Dichlorobenzene	0	-	44	0	–	-	–	0.00561	-	0.3	–	0.0302	–	Y
1,4-Dichlorobenzene	0	-	44	0	–	-	–	0.00561	-	0.3	–	0.0302	–	Y

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
1,4 Dichloro-2-butene	0	-	39	0	–	-	–	0.0112	-	0.0226	–	0.00731	–	Y
trans-1,4-Dichlorobutene	0	-	5	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
1,1-Dichloroethane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,2-Dichloroethane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,1-Dichloroethylene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
cis-1,2-Dichloroethene	0	-	36	0	–	-	–	0.00561	-	0.0113	–	0.00354	–	Y
trans-1,2-Dichloroethene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Dichloromethane	4	-	40	10	0.00755	-	0.009	0.005	-	0.05	SWMU 148 SB-05(11/29/1993)	0.00627	–	Y
1,2-Dichloropropane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,3-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2,2-Dichloropropane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloropropene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
cis-1,3-Dichloropropene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
trans-1,3-Dichloropropene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Ethanol	0	-	8	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	39	0	–	-	–	0.00561	-	0.02	–	0.00468	–	Y
Ethylbenzene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Iodomethane	0	-	44	0	–	-	–	0.0112	-	0.05	–	0.00932	–	Y
Isopropyl alcohol	0	-	5	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Isopropylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m-Dichlorobenzene	0	-	44	0	–	-	–	0.00561	-	0.3	–	0.0302	–	Y
Methyl n-butyl ketone	0	-	44	0	–	-	–	0.0224	-	0.05	–	0.0167	–	Y
Methylbenzene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	44	0	–	-	–	0.0224	-	0.05	–	0.0167	–	Y
Methyl tert-butyl ether (MTBE)	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Nitrobenzene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
n-Propylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Styrene (monomer)	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Tetrachloroethene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,1,1,2-Tetrachloroethane	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,2,2-Tetrachloroethane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,1,1-Trichloroethane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,1,2-Trichloroethane	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
1,2,3-Trichlorobenzene	0	-	5	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,3-Trichloropropane	0	-	44	0	–	-	–	0.00561	-	0.02	–	0.00472	–	Y
1,2,4-Trichlorobenzene	0	-	44	0	–	-	–	0.05	-	0.458	–	0.177	–	Y
1,2,4-Trimethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,3,5-Trimethylbenzene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Trichloroethylene	0	-	44	0	–	-	–	0.005	-	0.0113	–	0.00335	–	Y
Vinyl acetate	0	-	39	0	–	-	–	0.01	-	0.0452	–	0.0115	–	Y
Vinyl chloride	0	-	44	0	–	-	–	0.01	-	0.0226	–	0.00614	–	Y
m,p-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
o-Xylene	0	-	5	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	39	0	–	-	–	0.005	-	0.0113	–	0.00314	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Aniline	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Benzidine	0	-	44	0	–	-	–	0.25	-	2.22	–	0.881	–	N
Benzoic acid	0	-	44	0	–	-	–	0.25	-	2.22	–	0.908	–	N
Benzyl alcohol	0	-	36	0	–	-	–	0.25	-	0.458	–	0.197	–	N
Benzyl butyl phthalate	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Bis(2-chloroethoxy)methane	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Bis(2-ethylhexyl)phthalate	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
4-Bromophenyl phenyl ether	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
2-Butoxy ethanol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
p-Chloroaniline	0	-	36	0	–	-	–	0.00577	-	0.458	–	0.181	–	N
4-Chloro-3-methylphenol	0	-	44	0	–	-	–	0.25	-	0.7	–	0.225	–	N
Chlorophenols	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
4-Chlorophenyl phenyl ether	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
m,p-Cresol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Dibenz[a,,j]acridine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
3,3'-Dichlorobenzidine	0	-	44	0	–	-	–	0.25	-	0.7	–	0.225	–	N
2,4-Dichlorophenol	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
2,6-Dichlorophenol	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Diethyl phthalate	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
4-Dimethylaminoazobenzene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2,4-Dimethylphenol	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
2,4-Dinitrophenol	0	-	44	0	–	-	–	0.25	-	2.22	–	0.908	–	N
2,4-Dinitrotoluene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
1,2-Diphenylhydrazine	0	-	31	0	–	-	–	1.79	-	2.22	–	1.01	–	N
a,a-Dimethylphenethylamine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Dimethyl phthalate	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Di-n-butyl phthalate	1	-	44	2.27	0.592	-	0.592	0.25	-	0.458	SWMU 148 SB-02(11/29/1993)	0.197	–	N
Di-n-octyl phthalate	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
1,4-Dioxane	0	-	5	0	–	-	–	0.5	-	0.5	–	0.25	–	N
Diphenylamine	0	-	36	0	–	-	–	0.25	-	1.39	–	0.56	–	N

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Diphenylhydrazine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Ethyl methanesulfonate	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Hexachloro-1,3-butadiene	0	-	44	0	–	-	–	0.05	-	0.458	–	0.177	–	N
Hexachlorobenzene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Hexachlorocyclopentadiene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Hexachloroethane	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Methanamine, n-methyl-n-nitroso	0	-	13	0	–	-	–	0.25	-	0.33	–	0.15	–	N
2-Methyl-4,6-dinitrophenol	0	-	44	0	–	-	–	0.25	-	2.22	–	0.908	–	N
Methyl methanesulfonate	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Methylphenol	0	-	36	0	–	-	–	0.25	-	0.458	–	0.197	–	N
4-Methylphenol	0	-	31	0	–	-	–	0.37	-	0.458	–	0.208	–	N
2-Methyl pyridine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1-Naphthylamine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Naphthylamine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
2-Nitroaniline	0	-	36	0	–	-	–	0.25	-	2.22	–	0.887	–	N
3-Nitroaniline	0	-	36	0	–	-	–	0.25	-	2.22	–	0.887	–	N
p-Nitroaniline	0	-	36	0	–	-	–	0.25	-	2.22	–	0.887	–	N
2-Nitrophenol	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
4-Nitrophenol	0	-	44	0	–	-	–	0.25	-	2.22	–	0.908	–	N
n-Nitrosodi-n-butylamine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
n-Nitrosodi-n-propylamine	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
n-Nitrosodiphenylamine	0	-	39	0	–	-	–	0.3	-	0.458	–	0.196	–	N
n-Nitrosopiperidine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Pentachlorobenzene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Pentachlorophenol	0	-	44	0	–	-	–	0.25	-	2.22	–	0.908	–	N
Phenacetin	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Phenol	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Propyzamide	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Pyridine	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1,2,4,5-Tetrachlorobenzene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Tribromomethane	0	-	36	0	–	-	–	0.00561	-	0.0113	–	0.00358	–	N
2,4,5-Trichlorophenol	0	-	36	0	–	-	–	0.25	-	0.458	–	0.197	–	N
2,4,6-Trichlorophenol	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
Acenaphthylene	0	-	40	0	–	-	–	0.25	-	0.458	–	0.187	–	Y
Anthracene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Benzo(a)anthracene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Benzo(a)pyrene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Benzo(b)fluoranthene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Benzo(g,h,i)perylene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Benzo(k)fluoranthene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
1,2-Benzphenanthracene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
1-Chloronaphthalene	0	-	36	0	–	-	–	0.25	-	0.458	–	0.197	–	Y
2-Chloronaphthalene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
Dibenz(a,h)anthracene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
7,12-Dimethylbenz(a)anthracene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Fluoranthene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Fluorene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
Indeno(1,2,3-cd)pyrene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
3-Methylchloranthrene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1-Methylnaphthalene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
2-Methylnaphthalene	0	-	36	0	–	-	–	0.25	-	0.458	–	0.197	–	Y
Naphthalene	0	-	44	0	–	-	–	0.05	-	0.458	–	0.177	–	Y
Phenanthrene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	Y
Pyrene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Pesticides														
Aldrin	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
alpha-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
beta-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Camphechlor	0	-	6	0	–	-	–	0.067	-	0.067	–	0.0335	–	N
Chlordane	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
4,4-DDD	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDE	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDT	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
delta-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Dieldrin	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endosulfan I	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Endosulfan II	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endosulfan sulfate	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin aldehyde	0	-	6	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
gamma-BHC	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor epoxide	0	-	6	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Pentachloronitrobenzene	0	-	5	0	–	-	–	0.25	-	0.25	–	0.125	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethan	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	5	0	–	-	–	50	-	50	–	25	–	N
Gasoline Range Organics (GRO)	0	-	5	0	–	-	–	1	-	1	–	0.5	–	N
Petroleum hydrocarbons	0	-	8	0	–	-	–	10	-	13	–	5.38	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	39	0	–	-	–	10	-	41.6	–	16.2	–	N
Polychlorinated Biphenyls														
Aroclor 1221	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1232	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1242	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1254	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1260	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1016	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1248	0	-	6	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Explosives														
2,6-Dinitrotoluene	0	-	44	0	–	-	–	0.25	-	0.458	–	0.188	–	N
Inorganics														
Arsenic	18	-	42	42.9	0.59	-	11.6	0.42	-	3.47	HMW-43(11/17/1993)	2.52	3.092	N
Barium	35	-	42	83.3	22.3	-	179	88	-	110	HMW-43(11/17/1993)	73.8	84.81	N
Cadmium	0	-	42	0	–	-	–	0.1	-	12.8	–	2.21	–	N
Chromium	7	-	43	16.3	2.05	-	19.3	1.28	-	34.7	HMW-43(11/17/1993)	11.4	6.8	N
Chromium (Hexavalent)	0	-	40	0	–	-	–	1.08	-	6.41	–	0.885	–	N
Copper	4	-	4	100	1.5	-	2.49	–	-	–	HLSF-SB-027	1.93	–	N
Lead	19	-	42	45.2	2.3	-	14.7	1	-	27	HMW-43(11/17/1993)	5.28	5.079	N
Mercury	3	-	42	7.14	0.0258	-	0.0474	0.0227	-	0.1	SWMU 148 SB-07(11/29/1993)	0.0218	–	N
Nitrate + Nitrite	4	-	4	100	1.15	-	15.4	–	-	–	HLSF-SB-025(11/3/2006)	6.22	–	N
Phosphorus	4	-	4	100	34.9	-	86	–	-	–	HLSF-SB-027	63	–	N
Selenium	0	-	42	0	–	-	–	0.005	-	3.47	–	1.22	–	N
Silver	13	-	42	31	8.84	-	74.8	0.05	-	34.7	SWMU 148 SB-03(11/29/1993)	19.1	24.6	N
Sodium	4	-	4	100	655	-	1760	–	-	–	HLSF-SB-025(11/3/2006)	1040	–	N
Zinc	4	-	4	100	3.73	-	7.53	–	-	–	HLSF-SB-027	5.21	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.

Table E.15.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)				

For constituents analyzed in two methods, the result of the more precise method was used.
[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	17	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Acrylonitrile	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bis(2-chloroethyl)ether	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Bis(2-chloro-1-methylethyl)ether	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Bis(2-chloroisopropyl)ether	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Bromobenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	17	0	–	-	–	0.001	-	0.005	–	0.00179	–	Y
2-Butanone	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
sec-Butylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
tert-Butylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-12	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	6	-	17	35.3	0.0014	-	0.00219	0.001	-	0.001	HMW-11(2/22/2006)	0.00096	0.00165	Y
Chloromethane	2	-	17	11.8	0.0017	-	0.00191	0.001	-	0.001	HMW-43(7/27/2004)	0.000654	–	Y
2-Chlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
2-Chlorotoluene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibenzofuran	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	17	0	–	-	–	0.002	-	0.005	–	0.00197	–	N
1,2-Dibromoethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	17	0	–	-	–	0.001	-	0.005	–	0.000735	–	Y
1,4-Dichlorobenzene	0	-	17	0	–	-	–	0.001	-	0.005	–	0.000735	–	Y
trans-1,4-Dichlorobutene	0	-	17	0	–	-	–	0.01	-	0.01	–	0.005	–	Y

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,1-Dichloroethane	6	-	17	35.3	0.00153	-	0.0019	0.001	-	0.001	HMW-11(2/18/2004)	0.000934	0.00172	Y
1,2-Dichloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	17	0	–	-	–	0.001	-	0.005	–	0.000735	–	Y
Methyl n-butyl ketone	0	-	17	0	–	-	–	0.001	-	0.005	–	0.00179	–	Y
Methylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	17	0	–	-	–	0.0005	-	5	–	0.59	–	Y
n-Propylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	6	-	17	35.3	0.0318	-	0.0438	0.001	-	0.001	HMW-11(2/18/2004)	0.0137	0.0357	Y
Vinyl chloride	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min - Max (mg/L)		Min - Max (mg/L)					
4-Aminobiphenyl	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Aniline	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Benzidine	0 - 17	0	– -	–	0.01 -	15	–	1.77	–	N
Benzoic acid	0 - 17	0	– -	–	0.005 -	20	–	2.35	–	N
Benzyl alcohol	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Benzyl butyl phthalate	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Bis(2-chloroethoxy)methane	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Bis(2-ethylhexyl)phthalate	0 - 17	0	– -	–	0.005 -	10	–	1.18	–	N
4-Bromophenyl phenyl ether	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
2-Butoxy ethanol	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	N
p-Chloroaniline	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
4-Chloro-3-methylphenol	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Chlorophenols	0 - 17	0	– -	–	0.005 -	5	–	0.592	–	N
4-Chlorophenyl phenyl ether	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
m,p-Cresol	0 - 13	0	– -	–	0.005 -	5	–	0.387	–	N
Dibenz[a,,j]acridine	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
3,3'-Dichlorobenzidine	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
2,4-Dichlorophenol	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
2,6-Dichlorophenol	0 - 17	0	– -	–	0.005 -	5	–	0.592	–	N
Diethyl phthalate	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
4-Dimethylaminoazobenzene	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
2,4-Dimethylphenol	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
2,4-Dinitrophenol	0 - 17	0	– -	–	0.005 -	20	–	2.35	–	N
2,4-Dinitrotoluene	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
a,a-Dimethylphenethylamine	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Dimethyl phthalate	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Di-n-butyl phthalate	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
m-Dinitrobenzene	0 - 14	0	– -	–	0.0005 -	0.0005	–	0.00025	–	N
Di-n-octyl phthalate	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
1,4-Dioxane	0 - 2	0	– -	–	0.005 -	0.005	–	0.0025	–	N
Diphenylamine	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Diphenylhydrazine	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Ethyl methanesulfonate	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Hexachloro-1,3-butadiene	0 - 17	0	– -	–	0.005 -	0.005	–	0.0025	–	N
Hexachlorobenzene	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Hexachlorocyclopentadiene	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Hexachloroethane	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
Methanamine, n-methyl-n-nitroso	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N
2-Methyl-4,6-dinitrophenol	0 - 17	0	– -	–	0.005 -	5	–	0.59	–	N

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Methyl methanesulfonate	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Methylphenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
3-Methylphenol	0	-	4	0	–	-	–	0.005	-	5	–	1.25	–	N
4-Methylphenol	0	-	4	0	–	-	–	0.005	-	5	–	1.25	–	N
2-Methyl pyridine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1-Naphthylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Naphthylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Nitroaniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
3-Nitroaniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
p-Nitroaniline	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2-Nitrophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
4-Nitrophenol	0	-	17	0	–	-	–	0.025	-	5	–	0.598	–	N
n-Nitrosodi-n-butylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
n-Nitrosodi-n-propylamine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
n-Nitrosopiperidine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pentachlorobenzene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pentachlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.592	–	N
Phenacetin	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Phenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Propyzamide	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pyridine	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1,2,4,5-Tetrachlorobenzene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Tribromomethane	0	-	17	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2,4,6-Trichlorophenol	0	-	17	0	–	-	–	0.005	-	5	–	0.592	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1,3,5-Trinitrobenzene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Acenaphthylene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Benzo(a)anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(a)pyrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(b)fluoranthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(g,h,i)perylene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Benzo(k)fluoranthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1,2-Benzphenanthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1-Chloronaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
2-Chloronaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Dibenz(a,h)anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
7,12-Dimethylbenz(a)anthracene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Fluoranthene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Fluorene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Indeno(1,2,3-cd)pyrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
3-Methylchloranthrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
1-Methylnaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
2-Methylnaphthalene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Naphthalene	0	-	17	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Phenanthrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	Y
Pyrene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Pesticides														
Pentachloronitrobenzene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	17	0	–	-	–	5	-	50	–	15.7	–	N
Gasoline Range Organics (GRO)	0	-	17	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Explosives														
2-Amino-4,6-dinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-2,6-dinitrotoluene	0	-	2	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-dnt / 2-Amino-dnt	0	-	12	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	17	0	–	-	–	0.005	-	5	–	0.59	–	N
2,6-DNT / 2,4-DNT	4	-	12	33.3	0.00063	-	0.000939	0.0005	-	0.0005	HMW-43(8/11/2005)	0.000431	–	N
2-Nitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
3-Nitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazoc	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Perchlorate	1	-	4	25	0.0034	-	0.0034	0.005	-	0.01	HMW-11(2/22/2006)	0.00335	–	N
RDX	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	14	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Aluminum	6	-	12	50	0.051	-	3.9	0.03	-	0.03	HMW-11(2/18/2004)	0.675	1.33	N
Ammonia	0	-	14	0	–	-	–	1	-	1	–	0.5	–	N
Antimony	0	-	3	0	–	-	–	0.02	-	0.05	–	0.015	–	N
Arsenic	0	-	16	0	–	-	–	0.005	-	0.01	–	0.00406	–	N
Barium	10	-	16	62.5	0.01	-	0.042	0.01	-	0.1	HMW-11(8/30/2006)	0.0248	0.0224	N
Beryllium	5	-	15	33.3	0.003	-	0.008	0.002	-	0.0025	HMW-43(2/22/2006)	0.00253	0.00451	N
Boron	12	-	12	100	2.75	-	5.23	–	-	–	HMW-11(4/7/2005)	4.25	4.611	N
Cadmium	3	-	17	17.6	0.003	-	0.007	0.001	-	0.005	HMW-43(2/22/2006)	0.00188	–	N

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Calcium metal	4	-	4	100	357	-	569	–	-	–	HMW-43(8/29/2006)	468	–	N
Chromium	8	-	17	47.1	0.008	-	0.18	0.005	-	0.01	HMW-11(7/26/2004)	0.0555	0.0882	N
Chromium (Hexavalent)	4	-	8	50	0.178	-	0.263	0.01	-	0.01	HMW-11(2/18/2004)	0.109	–	N
Cobalt	2	-	15	13.3	0.006	-	0.006	0.002	-	0.02	HMW-11(2/22/2006),HMW-43(2/22/2006)	0.00577	–	N
Copper	8	-	17	47.1	0.005	-	0.078	0.005	-	0.0125	HMW-11(4/7/2005)	0.0175	0.0281	N
Cyanide (Total)	0	-	7	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Fluoride	16	-	17	94.1	3.21	-	7.02	0.2	-	0.2	HMW-11(8/30/2006)	3.92	5.383	N
Iron	10	-	12	83.3	0.014	-	2.18	0.01	-	0.01	HMW-11(2/18/2004)	0.431	1.283	N
Lead	0	-	17	0	–	-	–	0.005	-	0.01	–	0.00324	–	N
Lithium	4	-	4	100	0.175	-	0.813	–	-	–	HMW-11(2/22/2006),HMW-43(2/22/2006)	0.546	–	N
Magnesium	4	-	4	100	414	-	780	–	-	–	HMW-11(8/30/2006)	589	–	N
Manganese	2	-	12	16.7	0.026	-	0.032	0.005	-	0.025	HMW-11(2/18/2004)	0.0144	–	N
Mercury	0	-	16	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Molybdenum	12	-	12	100	0.158	-	0.352	–	-	–	HMW-11(7/26/2004)	0.257	0.286	N
Nickel	2	-	15	13.3	0.012	-	0.012	0.005	-	0.025	HMW-11(2/22/2006),HMW-11(8/30/2006)	0.0071	–	N
Nitrate	14	-	14	100	9.66	-	82.8	–	-	–	HMW-43(2/22/2006)	47.6	86.75	N
Nitrate + Nitrite	3	-	3	100	9.98	-	131	–	-	–	HMW-43(8/13/2008)	50.8	–	N
Phosphorus	4	-	12	33.3	0.057	-	0.199	0.05	-	0.05	HMW-11(8/11/2005)	0.0508	–	N
Potassium	4	-	4	100	87.2	-	126	–	-	–	HMW-11(8/30/2006)	104	–	N
Selenium	4	-	16	25	0.031	-	0.129	0.01	-	0.05	HMW-11(4/7/2005)	0.0293	–	N
Silver	0	-	17	0	–	-	–	0.002	-	0.0125	–	0.0025	–	N
Sodium	6	-	6	100	686	-	3640	–	-	–	HMW-11(12/19/2006)	2000	–	N
Strontium	12	-	12	100	4.6	-	16.7	–	-	–	HMW-11(4/7/2005)	8.52	10.99	N
Sulfate	17	-	17	100	3640	-	7710	–	-	–	HMW-11(8/30/2006)	5520	6241	N
Thallium	0	-	3	0	–	-	–	0.02	-	0.05	–	0.02	–	N
Tin	1	-	15	6.67	0.037	-	0.037	0.025	-	0.1	HMW-11(2/22/2006)	0.0166	–	N
Vanadium	13	-	15	86.7	0.013	-	0.07	0.025	-	0.025	HMW-11(2/22/2006)	0.0313	0.04	N
Zinc	4	-	17	23.5	0.013	-	0.021	0.005	-	0.025	HMW-11(8/30/2006)	0.00841	–	N
Other														
Bromide	7	-	15	46.7	0.52	-	3.43	0.2	-	1	HMW-11(12/19/2006)	0.69	1.267	N
Chloride	17	-	17	100	297	-	2450	–	-	–	HMW-11(8/30/2006)	1190	2180	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

Table E.15.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/L)	Max (mg/L)	Min (mg/L)	Max (mg/L)				

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.15-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds																
Acetone	0	/ 10	0	–	0.0249	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–
Acrolein	0	/ 10	0	–	0.0062	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–
Acrylonitrile	0	/ 10	0	–	0.0125	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–
Benzene	0	/ 10	0	–	0.0062	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–
Bis(2-chloroethyl)ether	0	/ 10	0	–	0.411	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–
Bis(2-chloroisopropyl)ether	0	/ 10	0	–	0.411	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–
Bromodichloromethane	0	/ 10	0	–	0.0062	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–
Bromomethane	0	/ 10	0	–	0.0125	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–
2-Butanone	0	/ 10	0	–	0.0249	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–
Carbon disulfide	0	/ 10	0	–	0.0062	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–
Carbon tetrachloride	0	/ 10	0	–	0.0062	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–
CFC-11	0	/ 10	0	–	0.0125	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–
Chlorobenzene	0	/ 10	0	–	0.0062	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–
Chlorodibromomethane	0	/ 10	0	–	0.0062	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–
Chloroethane	0	/ 10	0	–	0.0125	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–
2-Chloroethyl vinyl ether	0	/ 10	0	–	0.0125	–	NA	n	NA	n	–	–	–	–	–	–
Chloroform	0	/ 10	0	–	0.0062	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–
Chloromethane	0	/ 10	0	–	0.0125	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–
2-Chlorophenol	0	/ 10	0	–	0.411	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–
Dibenzofuran	0	/ 10	0	–	0.411	–	7.80E+01	n	1.00E+03	n	–	–	–	–	–	–
Dibromomethane	0	/ 10	0	–	0.0062	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–
1,2-Dichlorobenzene	0	/ 10	0	–	0.0062	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–
1,4-Dichlorobenzene	0	/ 10	0	–	0.0062	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–
1,4 Dichloro-2-butene	0	/ 10	0	–	0.0125	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–
1,1-Dichloroethane	0	/ 10	0	–	0.0062	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–
1,2-Dichloroethane	0	/ 10	0	–	0.0062	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–
1,1-Dichloroethylene	0	/ 10	0	–	0.0062	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–
cis-1,2-Dichloroethene	0	/ 10	0	–	0.0062	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–
trans-1,2-Dichloroethene	0	/ 10	0	–	0.0062	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–
Dichloromethane	1	/ 9	11.1	0.00846	0.0062	–	1.99E+02	c	1.09E+03	c	no	no	4.24E-05	–	7.79E-06	–
1,2-Dichloropropane	0	/ 10	0	–	0.0062	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–
cis-1,3-Dichloropropene	0	/ 10	0	–	0.0062	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–
trans-1,3-Dichloropropene	0	/ 10	0	–	0.0062	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–
Ethyl methacrylate	0	/ 10	0	–	0.0062	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–
Ethylbenzene	0	/ 10	0	–	0.0062	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–
Iodomethane	0	/ 10	0	–	0.0125	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–
m-Dichlorobenzene	0	/ 10	0	–	0.0062	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–
Methyl n-butyl ketone	0	/ 10	0	–	0.0249	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–
Methylbenzene	0	/ 10	0	–	0.0062	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–
4-Methyl-2-pentanone (MIBK)	0	/ 10	0	–	0.0249	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–
Nitrobenzene	0	/ 10	0	–	0.411	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–
Styrene (monomer)	0	/ 10	0	–	0.0062	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–
Tetrachloroethene	0	/ 10	0	–	0.0062	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–
1,1,2,2-Tetrachloroethane	0	/ 10	0	–	0.0062	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–
1,1,1-Trichloroethane	0	/ 10	0	–	0.0062	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–
1,1,2-Trichloroethane	0	/ 10	0	–	0.0062	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–
1,2,3-Trichloropropane	0	/ 10	0	–	0.0062	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–
1,2,4-Trichlorobenzene	0	/ 10	0	–	0.411	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–
Trichloroethylene	0	/ 10	0	–	0.0062	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–
Vinyl acetate	0	/ 10	0	–	0.0249	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–
Vinyl chloride	0	/ 10	0	–	0.0125	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–
Xylenes	0	/ 10	0	–	0.0062	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–
Semi Volatile Organic Compounds																
Benzidine	0	/ 10	0	–	1.99 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–
Benzoic acid	0	/ 10	0	–	1.99	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–
Benzyl alcohol	0	/ 10	0	–	0.411	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–

Table E.15-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)
Benzyl butyl phthalate	0	/	10	0	–	0.411	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–
Bis(2-chloroethoxy)methane	0	/	10	0	–	0.411	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–
Bis(2-ethylhexyl)phthalate	0	/	10	0	–	0.411	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–
4-Bromophenyl phenyl ether	0	/	10	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–
p-Chloroaniline	0	/	10	0	–	0.411	–	2.40E+01	c	8.60E+01	c	–	–	–	–	–	–
4-Chloro-3-methylphenol	0	/	10	0	–	0.411	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–
4-Chlorophenyl phenyl ether	0	/	10	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–
3,3'-Dichlorobenzidine	0	/	10	0	–	0.411	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–
2,4-Dichlorophenol	0	/	10	0	–	0.411	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–
Diethyl phthalate	0	/	10	0	–	0.411	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–
2,4-Dimethylphenol	0	/	10	0	–	0.411	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–
2,4-Dinitrophenol	0	/	10	0	–	1.99	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–
2,4-Dinitrotoluene	0	/	10	0	–	0.411	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–
1,2-Diphenylhydrazine	0	/	10	0	–	1.99	–	6.08E+00	c	2.39E+01	c	–	–	–	–	–	–
Dimethyl phthalate	0	/	10	0	–	0.411	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–
Di-n-butyl phthalate	0	/	10	0	–	0.411	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–
Di-n-octyl phthalate	0	/	10	0	–	0.411	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–
Diphenylamine	0	/	10	0	–	1.24	–	1.50E+03	n	1.50E+04	n	–	–	–	–	–	–
Hexachloro-1,3-butadiene	0	/	10	0	–	0.411	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–
Hexachlorobenzene	0	/	10	0	–	0.411	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–
Hexachlorocyclopentadiene	0	/	10	0	–	0.411	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–
Hexachloroethane	0	/	10	0	–	0.411	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–
2-Methyl-4,6-dinitrophenol	0	/	10	0	–	1.99	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–
2-Methylphenol	0	/	10	0	–	0.411	–	3.10E+03	n	3.10E+04	n	–	–	–	–	–	–
4-Methylphenol	0	/	10	0	–	0.411	–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–
2-Nitroaniline	0	/	10	0	–	1.99	–	6.10E+02	n	6.00E+03	n	–	–	–	–	–	–
3-Nitroaniline	0	/	10	0	–	1.99	–	6.10E+02	n	6.81E+03	n	–	–	–	–	–	–
p-Nitroaniline	0	/	10	0	–	1.99	–	2.40E+02	c	8.60E+02	c	–	–	–	–	–	–
2-Nitrophenol	0	/	10	0	–	0.411	–	NA	n	NA	n	–	–	–	–	–	–
4-Nitrophenol	0	/	10	0	–	1.99	–	NA	n	NA	n	–	–	–	–	–	–
n-Nitrosodi-n-propylamine	0	/	10	0	–	0.411	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–
n-Nitrosodiphenylamine	0	/	10	0	–	0.411	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–
Pentachlorophenol	0	/	10	0	–	1.99	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–
Phenol	0	/	10	0	–	0.411	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–
Tribromomethane	0	/	10	0	–	0.0085	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–
2,4,5-Trichlorophenol	0	/	10	0	–	0.411	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–
2,4,6-Trichlorophenol	0	/	10	0	–	0.411	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	10	0	–	0.411	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	0	/	10	0	–	0.411	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–
Acenaphthylene	0	/	9	0	–	0.411	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–
Anthracene	0	/	10	0	–	0.411	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–
Benzo(a)anthracene	0	/	10	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–
Benzo(a)pyrene	0	/	10	0	–	0.411	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–
Benzo(b)fluoranthene	0	/	10	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–
Benzo(g,h,i)perylene	0	/	10	0	–	0.411	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–
Benzo(k)fluoranthene	0	/	10	0	–	0.411	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–
1,2-Benzphenanthracene	0	/	10	0	–	0.411	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–
1-Chloronaphthalene	0	/	10	0	–	0.411	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–
2-Chloronaphthalene	0	/	10	0	–	0.411	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–
Dibenz(a,h)anthracene	0	/	10	0	–	0.411	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–
Fluoranthene	0	/	10	0	–	0.411	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–
Fluorene	0	/	10	0	–	0.411	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–
Indeno(1,2,3-cd)pyrene	0	/	10	0	–	0.411	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–
2-Methylnaphthalene	0	/	10	0	–	0.411	–	3.10E+02	n	4.10E+03	n	–	–	–	–	–	–
Naphthalene	0	/	10	0	–	0.411	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–
Phenanthrene	0	/	10	0	–	0.411	–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–

Table E.15-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)
Pyrene	0	/	10	0	–	0.411	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–
Total Petroleum Hydrocarbons (TPH)																	
Total Petroleum Hydrocarbons (TPH)	0	/	10	0	–	37.3	–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–
Explosives																	
2,6-Dinitrotoluene	0	/	10	0	–	0.411	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–
Inorganics																	
Arsenic	6	/	10	60	8.56	3.12	no	3.90E+00	c	1.77E+01	c	YES	no	2.20E+00	–	4.84E-01	–
Barium	10	/	10	100	112	–	YES	1.56E+04	n	2.24E+05	n	no	no	–	7.18E-03	–	5.00E-04
Cadmium	0	/	10	0	–	6.23	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–
Chromium	1	/	13	7.69	6.4	31.2	no	2.19E+02	n	2.92E+03	n	no	no	–	2.92E-02	–	2.19E-03
Chromium (Hexavalent)	0	/	12	0	–	1.25	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–
Lead	9	/	10	90	8.17	2.8	no	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–
Mercury	2	/	10	20	0.0474	0.0249	YES	7.71E+00	n	4.99E+01	n	no	no	–	6.15E-03	–	9.49E-04
Selenium	0	/	10	0	–	3.12	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–
Silver	4	/	10	40	72.4	31.2	no	3.91E+02	n	5.68E+03	n	no	no	–	1.85E-01	–	1.28E-02
Total Maximum / Screening Level Ratios														2	0.2	0.5	0.02
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)														2.E-05	0.2	5.E-06	0.02

Target Organ Max/SL Ratios	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (noncancer)
Kidney and Liver	0.007	0.0005
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.2	0.01
Lungs	0.03	0.002
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	NA	NA
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.007	0.0005
Immune System	NA	NA
Development	NA	NA
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	NA	NA

Notes:
– = Not applicable.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.

Table E.15-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Exposure Point Concentrations
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	EPC [a] (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is EPC > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Volatile Organic Compounds																	
Acetone	0	/ 10	0	–	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0	/ 10	0	–	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0	/ 10	0	–	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0	/ 10	0	–	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0	/ 10	0	–	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0	/ 10	0	–	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromodichloromethane	0	/ 10	0	–	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0	/ 10	0	–	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0	/ 10	0	–	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0	/ 10	0	–	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0	/ 10	0	–	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0	/ 10	0	–	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0	/ 10	0	–	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0	/ 10	0	–	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0	/ 10	0	–	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0	/ 10	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0	/ 10	0	–	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0	/ 10	0	–	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0	/ 10	0	–	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibenzofuran	0	/ 10	0	–	–	7.80E+01	n	1.00E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0	/ 10	0	–	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0	/ 10	0	–	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0	/ 10	0	–	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0	/ 10	0	–	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0	/ 10	0	–	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0	/ 10	0	–	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0	/ 10	0	–	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0	/ 10	0	–	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0	/ 10	0	–	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	1	/ 9	11.1	0.00846 m	–	1.99E+02	c	1.09E+03	c	no	no	4.24E-05	–	7.79E-06	–	no	no
1,2-Dichloropropane	0	/ 10	0	–	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0	/ 10	0	–	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0	/ 10	0	–	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethyl methacrylate	0	/ 10	0	–	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0	/ 10	0	–	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0	/ 10	0	–	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0	/ 10	0	–	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0	/ 10	0	–	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0	/ 10	0	–	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0	/ 10	0	–	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0	/ 10	0	–	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0	/ 10	0	–	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0	/ 10	0	–	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0	/ 10	0	–	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0	/ 10	0	–	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0	/ 10	0	–	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0	/ 10	0	–	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0	/ 10	0	–	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0	/ 10	0	–	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0	/ 10	0	–	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0	/ 10	0	–	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0	/ 10	0	–	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																	
Benzidine	0	/ 10	0	–	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0	/ 10	0	–	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl alcohol	0	/ 10	0	–	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no

Table E.15-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Exposure Point Concentrations
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	EPC [a] (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is EPC > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Benzyl butyl phthalate	0	/	10	0	–	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0	/	10	0	–	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bis(2-ethylhexyl)phthalate	0	/	10	0	–	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0	/	10	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
p-Chloroaniline	0	/	10	0	–	–	2.40E+01	c	8.60E+01	c	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0	/	10	0	–	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0	/	10	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0	/	10	0	–	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0	/	10	0	–	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
Diethyl phthalate	0	/	10	0	–	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0	/	10	0	–	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0	/	10	0	–	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0	/	10	0	–	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–	no	no
1,2-Diphenylhydrazine	0	/	10	0	–	–	6.08E+00	c	2.39E+01	c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0	/	10	0	–	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0	/	10	0	–	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0	/	10	0	–	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–	no	no
Diphenylamine	0	/	10	0	–	–	1.50E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0	/	10	0	–	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0	/	10	0	–	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0	/	10	0	–	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Hexachloroethane	0	/	10	0	–	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0	/	10	0	–	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–	no	no
2-Methylphenol	0	/	10	0	–	–	3.10E+03	n	3.10E+04	n	–	–	–	–	–	–	no	no
4-Methylphenol	0	/	10	0	–	–	3.10E+02	n	3.10E+03	n	–	–	–	–	–	–	no	no
2-Nitroaniline	0	/	10	0	–	–	6.10E+02	n	6.00E+03	n	–	–	–	–	–	–	no	no
3-Nitroaniline	0	/	10	0	–	–	6.10E+02	n	6.81E+03	n	–	–	–	–	–	–	no	no
p-Nitroaniline	0	/	10	0	–	–	2.40E+02	c	8.60E+02	c	–	–	–	–	–	–	no	no
2-Nitrophenol	0	/	10	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Nitrophenol	0	/	10	0	–	–	NA	n	NA	n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0	/	10	0	–	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0	/	10	0	–	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–	no	no
Pentachlorophenol	0	/	10	0	–	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–	no	no
Phenol	0	/	10	0	–	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–	no	no
Tribromomethane	0	/	10	0	–	–	6.10E+02	c	2.20E+03	c	–	–	–	–	–	–	no	no
2,4,5-Trichlorophenol	0	/	10	0	–	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0	/	10	0	–	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	10	0	–	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	0	/	10	0	–	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0	/	9	0	–	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0	/	10	0	–	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0	/	10	0	–	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0	/	10	0	–	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0	/	10	0	–	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0	/	10	0	–	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0	/	10	0	–	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0	/	10	0	–	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–	no	no
1-Chloronaphthalene	0	/	10	0	–	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0	/	10	0	–	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0	/	10	0	–	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Fluoranthene	0	/	10	0	–	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0	/	10	0	–	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0	/	10	0	–	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
2-Methylnaphthalene	0	/	10	0	–	–	3.10E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Naphthalene	0	/	10	0	–	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Phenanthrene	0	/	10	0	–	–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–	no	no

Table E.15-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Exposure Point Concentrations
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is EPC > Screening Level? Residential Scenario	Is EPC > Screening Level? Industrial Scenario	Residential Scenario EPC / SL (cancer)	Residential Scenario EPC / SL (noncancer)	Industrial Scenario EPC / SL (cancer)	Industrial Scenario EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Pyrene	0 / 10	0	–	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)																
Total Petroleum Hydrocarbons (TPH)	0 / 10	0	–	–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–	no	no
Explosives																
2,6-Dinitrotoluene	0 / 10	0	–	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																
Arsenic	6 / 10	60	4.941	no	3.90E+00	c	1.77E+01	c	YES	no	1.27E+00	–	2.79E-01	–	no	no
Barium	10 / 10	100	97.61	YES	1.56E+04	n	2.24E+05	n	no	no	–	6.26E-03	–	4.36E-04	no	no
Cadmium	0 / 10	0	–	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Chromium	1 / 13	7.69	6.4 m	no	2.19E+02	n	2.92E+03	n	no	no	–	2.92E-02	–	2.19E-03	no	no
Chromium (Hexavalent)	0 / 12	0	–	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	9 / 10	90	6.306	no	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	2 / 10	20	0.0474 m	YES	7.71E+00	n	4.99E+01	n	no	no	–	6.15E-03	–	9.49E-04	no	no
Selenium	0 / 10	0	–	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	4 / 10	40	72.4 m	no	3.91E+02	n	5.68E+03	n	no	no	–	1.85E-01	–	1.28E-02	no	no
Total Maximum / Screening Level Ratios											1	0.2	0.3	0.02		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											1.E-05	0.2	3.E-06	0.02		

Target Organ Max/SL Ratios	Residential Scenario (noncancer)	Industrial Scenario (noncancer)
Kidney and Liver	0.006	0.0004
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.2	0.01
Lungs	0.03	0.002
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	NA	NA
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.006	0.0004
Immune System	NA	NA
Development	NA	NA
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	NA	NA

Notes:

– =	Not applicable.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).
EPCs marked with "m" are based on the maximum detected concentration.

Table E.15-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	4	/	37	10.8	0.42	0.1	–	2.63E+05	n	no	–	1.60E-06	no
Acrolein	0	/	37	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	37	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	37	0	–	0.0113	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	37	0	–	0.458	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	37	0	–	0.458	–	3.10E+03	c	–	–	–	no
Bromodichloromethane	0	/	30	0	–	0.0113	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/	37	0	–	0.0226	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	37	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	37	0	–	0.0113	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	37	0	–	0.0113	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	37	0	–	0.0226	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	7	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	37	0	–	0.0113	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	37	0	–	0.0113	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	37	0	–	0.0226	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	37	0	–	0.0226	–	NA	n	–	–	–	no
Chloroform	0	/	37	0	–	0.0113	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	37	0	–	0.0226	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	37	0	–	0.458	–	1.55E+03	n	–	–	–	no
Dibenzofuran	0	/	30	0	–	0.458	–	9.53E+02	n	–	–	–	no
Dibromomethane	0	/	37	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	37	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	37	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	37	0	–	0.0226	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	37	0	–	0.0113	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	37	0	–	0.0113	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	37	0	–	0.0113	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	30	0	–	0.0113	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/	37	0	–	0.0113	–	8.14E+02	n	–	–	–	no
Dichloromethane	4	/	34	11.8	0.009	0.0069	–	1.06E+04	n	no	–	8.52E-07	no
1,2-Dichloropropane	0	/	37	0	–	0.0113	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	37	0	–	0.0113	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	37	0	–	0.0113	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	7	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	37	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	37	0	–	0.0113	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	37	0	–	0.0226	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	37	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	37	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	37	0	–	0.0113	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	37	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	37	0	–	0.458	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	37	0	–	0.0113	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	37	0	–	0.0113	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	37	0	–	0.0113	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	37	0	–	0.0113	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	37	0	–	0.0113	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	37	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	37	0	–	0.458	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	37	0	–	0.0113	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	37	0	–	0.0452	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	37	0	–	0.0226	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	37	0	–	0.0113	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds													
Benzidine	0	/	37	0	–	2.22 ^	–	7.20E-01	c	–	–	–	no

Table E.15-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Benzoic acid	0	/	37	0	–	2.22	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/	30	0	–	0.458	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0	/	37	0	–	0.458	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	37	0	–	0.458	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/	37	0	–	0.458	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	/	37	0	–	0.458	–	NA	n	–	–	–	no
p-Chloroaniline	0	/	30	0	–	0.458	–	8.34E+02	c	–	–	–	no
4-Chloro-3-methylphenol	0	/	37	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	37	0	–	0.458	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	37	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	37	0	–	0.458	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	37	0	–	0.458	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	37	0	–	0.458	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	37	0	–	2.22	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	37	0	–	0.458	–	4.76E+02	n	–	–	–	no
1,2-Diphenylhydrazine	0	/	30	0	–	2.22	–	2.07E+02	c	–	–	–	no
Dimethyl phthalate	0	/	37	0	–	0.458	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	1	/	37	2.7	0.592	0.458	–	2.38E+04	n	no	–	2.49E-05	no
Di-n-octyl phthalate	0	/	37	0	–	0.458	–	9.53E+03	n	–	–	–	no
Diphenylamine	0	/	30	0	–	1.39	–	5.96E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	37	0	–	0.458	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	37	0	–	0.458	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	37	0	–	0.458	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	37	0	–	0.458	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	7	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	37	0	–	2.22	–	2.38E+01	n	–	–	–	no
2-Methylphenol	0	/	30	0	–	0.458	–	1.19E+04	n	–	–	–	no
4-Methylphenol	0	/	30	0	–	0.458	–	1.19E+03	n	–	–	–	no
2-Nitroaniline	0	/	30	0	–	2.22	–	3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/	30	0	–	2.22	–	3.88E+02	n	–	–	–	no
p-Nitroaniline	0	/	30	0	–	2.22	–	9.37E+02	n	–	–	–	no
2-Nitrophenol	0	/	37	0	–	0.458	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	37	0	–	2.22	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	37	0	–	0.458	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	37	0	–	0.458	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	37	0	–	2.22	–	1.03E+03	c	–	–	–	no
Phenol	0	/	37	0	–	0.458	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/	30	0	–	0.0113	–	4.76E+03	n	–	–	–	no
2,4,5-Trichlorophenol	0	/	30	0	–	0.458	–	2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	37	0	–	0.458	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	37	0	–	0.458	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	37	0	–	0.458	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	34	0	–	0.458	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	37	0	–	0.458	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	37	0	–	0.458	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	37	0	–	0.458	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	37	0	–	0.458	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	37	0	–	0.458	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	37	0	–	0.458	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	37	0	–	0.458	–	2.06E+04	c	–	–	–	no
1-Chloronaphthalene	0	/	30	0	–	0.458	–	2.48E+04	n	–	–	–	no
2-Chloronaphthalene	0	/	37	0	–	0.458	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	37	0	–	0.458	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	37	0	–	0.458	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	37	0	–	0.458	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	37	0	–	0.458	–	2.13E+02	c	–	–	–	no

Table E.15-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
2-Methylnaphthalene	0	/ 30	0	–	0.458	–	8.91E+02	n	–	–	–	no
Naphthalene	0	/ 37	0	–	0.458	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/ 37	0	–	0.458	–	7.15E+03	n	–	–	–	no
Pyrene	0	/ 37	0	–	0.458	–	6.68E+03	n	–	–	–	no
Pesticides												
Aldrin	0	/ 6	0	–	0.0034	–	7.15E+00	n	–	–	–	no
alpha-BHC	0	/ 6	0	–	0.0034	–	2.63E+01	c	–	–	–	no
beta-BHC	0	/ 6	0	–	0.0034	–	9.19E+01	c	–	–	–	no
Camphechlor	0	/ 6	0	–	0.067	–	1.50E+02	c	–	–	–	no
Chlordane	0	/ 6	0	–	0.034	–	1.35E+02	n	–	–	–	no
4,4-DDD	0	/ 6	0	–	0.0067	–	6.95E+02	c	–	–	–	no
4,4-DDE	0	/ 6	0	–	0.0067	–	4.90E+02	c	–	–	–	no
4,4-DDT	0	/ 6	0	–	0.0067	–	1.42E+02	n	–	–	–	no
delta-BHC	0	/ 6	0	–	0.0034	–	8.30E+01	n	–	–	–	no
Dieldrin	0	/ 6	0	–	0.0067	–	1.03E+01	c	–	–	–	no
Endosulfan I	0	/ 6	0	–	0.0034	–	1.43E+03	n	–	–	–	no
Endosulfan II	0	/ 6	0	–	0.0067	–	1.43E+03	n	–	–	–	no
Endosulfan sulfate	0	/ 6	0	–	0.0067	–	1.43E+03	n	–	–	–	no
Endrin	0	/ 6	0	–	0.0067	–	7.15E+01	n	–	–	–	no
Endrin aldehyde	0	/ 6	0	–	0.0067	–	7.15E+01	n	–	–	–	no
gamma-BHC	0	/ 6	0	–	0.0034	–	8.30E+01	n	–	–	–	no
Heptachlor	0	/ 6	0	–	0.0034	–	3.68E+01	c	–	–	–	no
Heptachlor epoxide	0	/ 6	0	–	0.0034	–	3.10E+00	n	–	–	–	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-et	0	/ 6	0	–	0.034	–	1.19E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)												
Total Petroleum Hydrocarbons (TPH)	0	/ 37	0	–	41.6	–	NA	n	–	–	–	no
Polychlorinated Biphenyls												
Aroclor 1221	0	/ 6	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1232	0	/ 6	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1242	0	/ 6	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor 1254	0	/ 6	0	–	0.034	–	4.36E+00	n	–	–	–	no
Aroclor 1260	0	/ 6	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor-1016	0	/ 6	0	–	0.034	–	1.53E+01	n	–	–	–	no
Aroclor-1248	0	/ 6	0	–	0.034	–	7.58E+01	c	–	–	–	no
Explosives												
2,6-Dinitrotoluene	0	/ 37	0	–	0.458	–	2.39E+02	n	–	–	–	no
Inorganics												
Arsenic	17	/ 36	47.2	9.64	3.47	no	6.54E+01	n	no	–	1.47E-01	no
Barium	30	/ 36	83.3	179	110	YES	4.35E+03	n	no	–	4.11E-02	no
Cadmium	0	/ 36	0	–	12.8	no	3.09E+02	n	–	–	–	no
Chromium	2	/ 38	5.26	19.3	34.7	no	4.49E+02	n	no	–	4.29E-02	no
Chromium (Hexavalent)	0	/ 36	0	–	6.41	no	4.49E+02	n	–	–	–	no
Lead	15	/ 36	41.7	14.7	27	no	8.00E+02	IEUBK	no	–	–	no
Mercury	3	/ 36	8.33	0.0474	0.1	YES	6.36E+01	n	no	–	7.45E-04	no
Selenium	0	/ 36	0	–	3.47	no	1.55E+03	n	–	–	–	no
Silver	12	/ 36	33.3	74.8	34.7	no	1.55E+03	n	no	–	4.83E-02	no

	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios	NA	0.3
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	NA	0.3

Target Organ Max/SL Ratios	
Kidney and Liver	0.04
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.2
Lungs	0.04

Table E.15-HHRA-3
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
						Gastrointestinal Tract and Forestomach			NA	
						Whole Body			0.00002	
						Blood			NA	
						Nervous System			NA	
						Dental			NA	
						Red Blood Cells			NA	
						Glands			NA	
						Fetus			0.04	
						Immune System			NA	
						Development			NA	
						Reproduction			NA	
						Bone			NA	
						Not Available/ Not Reported			NA	

Notes:

– =	Not applicable.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.15-HHRA-4
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	4	/	44	9	0.42	no
Acetophenone	0	/	5	0	–	no
Acrolein	0	/	39	0	–	no
Acrylonitrile	0	/	44	0	–	no
Benzene	0	/	44	0	–	no
Bis(2-chloroethyl)ether	0	/	44	0	–	no
Bis(2-chloroisopropyl)ether	0	/	44	0	–	no
Bromobenzene	0	/	5	0	–	no
Bromodichloromethane	0	/	36	0	–	no
Bromomethane	0	/	44	0	–	no
2-Butanone	0	/	44	0	–	no
tert-Butyl alcohol	0	/	5	0	–	no
n-Butylbenzene	0	/	5	0	–	no
sec-Butylbenzene	0	/	5	0	–	no
tert-Butylbenzene	0	/	5	0	–	no
Carbon disulfide	0	/	44	0	–	no
Carbon tetrachloride	0	/	44	0	–	no
CFC-11	0	/	44	0	–	no
CFC-12	0	/	13	0	–	no
Chlorobenzene	0	/	44	0	–	no
Chlorobromomethane	0	/	5	0	–	no
Chloroethane	0	/	44	0	–	no
2-Chloroethyl vinyl ether	0	/	44	0	–	no
Chloroform	0	/	44	0	–	no
Chloromethane	0	/	44	0	–	no
2-Chlorophenol	0	/	44	0	–	no
2-Chlorotoluene	0	/	5	0	–	no
4-Chlorotoluene	0	/	5	0	–	no
Cymene	0	/	5	0	–	no
Dibenzofuran	0	/	36	0	–	no
1,2-Dibromoethane	0	/	5	0	–	no
Dibromomethane	0	/	44	0	–	no
1,2-Dichlorobenzene	0	/	44	0	–	no
1,4-Dichlorobenzene	0	/	44	0	–	no
1,4 Dichloro-2-butene	0	/	39	0	–	no
trans-1,4-Dichlorobutene	0	/	5	0	–	no
1,1-Dichloroethane	0	/	44	0	–	no
1,2-Dichloroethane	0	/	44	0	–	no
1,1-Dichloroethylene	0	/	44	0	–	no
cis-1,2-Dichloroethene	0	/	36	0	–	no
trans-1,2-Dichloroethene	0	/	44	0	–	no
Dichloromethane	4	/	40	10	0.009	no
1,2-Dichloropropane	0	/	44	0	–	no
1,3-Dichloropropane	0	/	5	0	–	no
2,2-Dichloropropane	0	/	5	0	–	no
1,1-Dichloropropene	0	/	5	0	–	no
cis-1,3-Dichloropropene	0	/	44	0	–	no
trans-1,3-Dichloropropene	0	/	44	0	–	no
Ethyl methacrylate	0	/	39	0	–	no
Ethylbenzene	0	/	44	0	–	no
Iodomethane	0	/	44	0	–	no
Isopropylbenzene	0	/	5	0	–	no
m-Dichlorobenzene	0	/	44	0	–	no
Methyl n-butyl ketone	0	/	44	0	–	no
Methylbenzene	0	/	44	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	44	0	–	no
Methyl tert-butyl ether (MTBE)	0	/	5	0	–	no
Nitrobenzene	0	/	44	0	–	no
n-Propylbenzene	0	/	5	0	–	no
Styrene (monomer)	0	/	44	0	–	no
Tetrachloroethene	0	/	44	0	–	no

Table E.15-HHRA-4
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
1,1,1,2-Tetrachloroethane	0	/	5	0	–	no
1,1,2,2-Tetrachloroethane	0	/	44	0	–	no
1,1,1-Trichloroethane	0	/	44	0	–	no
1,1,2-Trichloroethane	0	/	44	0	–	no
1,2,3-Trichlorobenzene	0	/	5	0	–	no
1,2,3-Trichloropropane	0	/	44	0	–	no
1,2,4-Trichlorobenzene	0	/	44	0	–	no
1,2,4-Trimethylbenzene	0	/	5	0	–	no
1,3,5-Trimethylbenzene	0	/	5	0	–	no
Trichloroethylene	0	/	44	0	–	no
Vinyl acetate	0	/	39	0	–	no
Vinyl chloride	0	/	44	0	–	no
m,p-Xylene	0	/	5	0	–	no
o-Xylene	0	/	5	0	–	no
Xylenes	0	/	39	0	–	no
Semi Volatile Organic Compounds						
n-Nitrosodi-n-butylamine	0	/	5	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	44	0	–	no
Acenaphthylene	0	/	40	0	–	no
Anthracene	0	/	44	0	–	no
1-Chloronaphthalene	0	/	36	0	–	no
2-Chloronaphthalene	0	/	44	0	–	no
Fluorene	0	/	44	0	–	no
1-Methylnaphthalene	0	/	5	0	–	no
2-Methylnaphthalene	0	/	36	0	–	no
Naphthalene	0	/	44	0	–	no
Phenanthrene	0	/	44	0	–	no

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway. Lab contaminants were not retained as COPCs for the vapor inhalation pathway if they are the only detected VOCs in soil.

Table E.15-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds												
Acetone	0	/	17	0	–	0.01		2.20E+02	n	–	–	–
Acetophenone	0	/	17	0	–	5		8.00E+02	n	–	–	–
Acrylonitrile	0	/	17	0	–	0.001		8.50E-02	c	–	–	–
Benzene	0	/	17	0	–	0.001		1.40E-02	c	–	–	–
Bis(2-chloroethyl)ether	0	/	17	0	–	5	^	1.00E-01	c	–	–	–
Bis(2-chloro-1-methylethyl)ether	0	/	17	0	–	5	^	5.10E-01	c	–	–	–
Bis(2-chloroisopropyl)ether	0	/	17	0	–	5		NA	c	–	–	–
Bromobenzene	0	/	17	0	–	0.001		NA	n	–	–	–
Bromodichloromethane	0	/	17	0	–	0.001		2.10E-02	c	–	–	–
Bromomethane	0	/	17	0	–	0.005		2.00E-02	n	–	–	–
2-Butanone	0	/	17	0	–	0.005		4.40E+02	n	–	–	–
tert-Butyl alcohol	0	/	2	0	–	0.005		NA	n	–	–	–
n-Butylbenzene	0	/	17	0	–	0.001		2.60E-01	n	–	–	–
sec-Butylbenzene	0	/	17	0	–	0.001		2.50E-01	n	–	–	–
tert-Butylbenzene	0	/	17	0	–	0.001		2.90E-01	n	–	–	–
Carbon disulfide	0	/	17	0	–	0.001		5.60E-01	n	–	–	–
Carbon tetrachloride	0	/	17	0	–	0.001		5.00E-03	c	–	–	–
CFC-11	0	/	17	0	–	0.001		1.80E-01	n	–	–	–
CFC-12	0	/	17	0	–	0.001		1.40E-02	n	–	–	–
Chlorobenzene	0	/	17	0	–	0.001		3.90E-01	n	–	–	–
Chlorobromomethane	0	/	17	0	–	0.001		NA	n	–	–	–
Chloroethane	0	/	17	0	–	0.001		2.80E+01	n	–	–	–
2-Chloroethyl vinyl ether	0	/	17	0	–	0.005		NA	n	–	–	–
Chloroform	6	/	17	35.3	0.00219	0.001		8.00E-02	c	no	2.74E-02	–
Chloromethane	2	/	17	11.8	0.00191	0.001		6.70E-02	c	no	2.85E-02	–
2-Chlorophenol	0	/	17	0	–	5	^	1.10E+00	n	–	–	–
2-Chlorotoluene	0	/	17	0	–	0.001		NA	n	–	–	–
4-Chlorotoluene	0	/	17	0	–	0.001		NA	n	–	–	–
Cymene	0	/	17	0	–	0.001		NA	n	–	–	–
Dibenzofuran	0	/	17	0	–	5		NA	n	–	–	–
1,2-Dibromoethane	0	/	17	0	–	0.001		3.60E-03	c	–	–	–
Dibromomethane	0	/	17	0	–	0.001		9.90E-01	n	–	–	–
1,2-Dichlorobenzene	0	/	17	0	–	0.005		2.60E+00	n	–	–	–
1,4-Dichlorobenzene	0	/	17	0	–	0.005		8.20E+00	c	–	–	–
trans-1,4-Dichlorobutene	0	/	17	0	–	0.01		NA	c	–	–	–
1,1-Dichloroethane	6	/	17	35.3	0.0019	0.001		2.20E+00	c	no	8.64E-04	–
1,2-Dichloroethane	0	/	17	0	–	0.001		2.30E-02	c	–	–	–
1,1-Dichloroethylene	0	/	17	0	–	0.001		1.90E-01	n	–	–	–
cis-1,2-Dichloroethene	0	/	17	0	–	0.001		2.10E-01	n	–	–	–
trans-1,2-Dichloroethene	0	/	17	0	–	0.001		1.80E-01	n	–	–	–
Dichloromethane	0	/	17	0	–	0.005		5.80E-01	c	–	–	–
1,2-Dichloropropane	0	/	17	0	–	0.001		3.50E-02	c	–	–	–
1,3-Dichloropropane	0	/	17	0	–	0.001		NA	n	–	–	–
2,2-Dichloropropane	0	/	17	0	–	0.001		NA	n	–	–	–
1,1-Dichloropropene	0	/	17	0	–	0.001		NA	c	–	–	–
cis-1,3-Dichloropropene	0	/	17	0	–	0.001		NA	c	–	–	–

Table E.15-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
trans-1,3-Dichloropropene	0	/	17	0	–	0.001		NA	c	–	–	–
Ethylbenzene	0	/	17	0	–	0.001		7.00E-01	c	–	–	–
Iodomethane	0	/	17	0	–	0.005		NA	n	–	–	–
Isopropylbenzene	0	/	17	0	–	0.001		8.40E-03	n	–	–	–
m-Dichlorobenzene	0	/	17	0	–	0.005		8.30E-01	n	–	–	–
Methyl n-butyl ketone	0	/	17	0	–	0.005		NA	n	–	–	–
Methylbenzene	0	/	17	0	–	0.001		1.50E+00	n	–	–	–
4-Methyl-2-pentanone (MIBK)	0	/	17	0	–	0.005		1.40E+01	n	–	–	–
Methyl tert-butyl ether (MTBE)	0	/	17	0	–	0.001		1.20E+02	c	–	–	–
Nitrobenzene	0	/	17	0	–	5	^	2.00E+00	c	–	–	–
n-Propylbenzene	0	/	17	0	–	0.001		3.20E-01	n	–	–	–
Styrene (monomer)	0	/	17	0	–	0.001		8.90E+00	n	–	–	–
Tetrachloroethene	0	/	17	0	–	0.001		1.10E-02	c	–	–	–
1,1,1,2-Tetrachloroethane	0	/	17	0	–	0.001		3.30E-02	c	–	–	–
1,1,2,2-Tetrachloroethane	0	/	17	0	–	0.001		3.00E-02	c	–	–	–
1,1,1-Trichloroethane	0	/	17	0	–	0.001		3.10E+00	n	–	–	–
1,1,2-Trichloroethane	0	/	17	0	–	0.001		4.10E-02	c	–	–	–
1,2,3-Trichlorobenzene	0	/	17	0	–	0.005		NA	n	–	–	–
1,2,3-Trichloropropane	0	/	17	0	–	0.001		2.90E-01	c	–	–	–
1,2,4-Trichlorobenzene	0	/	17	0	–	0.005		3.40E+00	n	–	–	–
1,2,4-Trimethylbenzene	0	/	17	0	–	0.001		2.40E-02	n	–	–	–
1,3,5-Trimethylbenzene	0	/	17	0	–	0.001		2.50E-02	n	–	–	–
Trichloroethylene	6	/	17	35.3	0.0438	0.001		5.00E-03	c	YES	8.76E+00	–
Vinyl chloride	0	/	17	0	–	0.001		2.50E-03	c	–	–	–
m,p-Xylene	0	/	17	0	–	0.001		2.30E+01	n	–	–	–
o-Xylene	0	/	17	0	–	0.001		3.30E+01	n	–	–	–
Semi Volatile Organic Compounds												
n-Nitrosodi-n-butylamine	0	/	17	0	–	5	^	1.20E-03	c	–	–	–
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/	17	0	–	5		NA	n	–	–	–
Acenaphthylene	0	/	17	0	–	5		NA	n	–	–	–
Anthracene	0	/	17	0	–	5		NA	n	–	–	–
1-Chloronaphthalene	0	/	17	0	–	5		NA	n	–	–	–
2-Chloronaphthalene	0	/	17	0	–	5		NA	n	–	–	–
Fluorene	0	/	17	0	–	5		NA	n	–	–	–
1-Methylnaphthalene	0	/	17	0	–	5		NA	c	–	–	–
2-Methylnaphthalene	0	/	17	0	–	5	^	3.30E+00	n	–	–	–
Naphthalene	0	/	17	0	–	0.005		1.50E-01	c	–	–	–
Phenanthrene	0	/	17	0	–	5		NA	n	–	–	–

Total Maximum / Screening Level Ratios	9	NA
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	9.E-05	NA

Target Organ Max/SL Ratios	
Kidney and Liver	NA
Brain	NA
Nasal	NA

Table E.15-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
						Eyes		NA
						Skin		NA
						Lungs		NA
						Gastrointestinal Tract and Forestomach		NA
						Whole Body		NA
						Blood		NA
						Nervous System		NA
						Dental		NA
						Red Blood Cells		NA
						Glands		NA
						Fetus		NA
						Immune System		NA
						Development		NA
						Reproduction		NA
						Bone		NA
						Not Available/ Not Reported		NA

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

Table E.15-HHRA-6
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds										
Acetone	0 / 17	0	–		2.20E+02	n	–	–	–	no
Acetophenone	0 / 17	0	–		8.00E+02	n	–	–	–	no
Acrylonitrile	0 / 17	0	–		8.50E-02	c	–	–	–	no
Benzene	0 / 17	0	–		1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0 / 17	0	–		1.00E-01	c	–	–	–	no
Bis(2-chloro-1-methylethyl)ether	0 / 17	0	–		5.10E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0 / 17	0	–		NA	c	–	–	–	no
Bromobenzene	0 / 17	0	–		NA	n	–	–	–	no
Bromodichloromethane	0 / 17	0	–		2.10E-02	c	–	–	–	no
Bromomethane	0 / 17	0	–		2.00E-02	n	–	–	–	no
2-Butanone	0 / 17	0	–		4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0 / 2	0	–		NA	n	–	–	–	no
n-Butylbenzene	0 / 17	0	–		2.60E-01	n	–	–	–	no
sec-Butylbenzene	0 / 17	0	–		2.50E-01	n	–	–	–	no
tert-Butylbenzene	0 / 17	0	–		2.90E-01	n	–	–	–	no
Carbon disulfide	0 / 17	0	–		5.60E-01	n	–	–	–	no
Carbon tetrachloride	0 / 17	0	–		5.00E-03	c	–	–	–	no
CFC-11	0 / 17	0	–		1.80E-01	n	–	–	–	no
CFC-12	0 / 17	0	–		1.40E-02	n	–	–	–	no
Chlorobenzene	0 / 17	0	–		3.90E-01	n	–	–	–	no
Chlorobromomethane	0 / 17	0	–		NA	n	–	–	–	no
Chloroethane	0 / 17	0	–		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0 / 17	0	–		NA	n	–	–	–	no
Chloroform	6 / 17	35.3	0.00165		8.00E-02	c	no	2.06E-02	–	yes
Chloromethane	2 / 17	11.8	0.00191	m	6.70E-02	c	no	2.85E-02	–	yes
2-Chlorophenol	0 / 17	0	–		1.10E+00	n	–	–	–	no
2-Chlorotoluene	0 / 17	0	–		NA	n	–	–	–	no
4-Chlorotoluene	0 / 17	0	–		NA	n	–	–	–	no
Cymene	0 / 17	0	–		NA	n	–	–	–	no
Dibenzofuran	0 / 17	0	–		NA	n	–	–	–	no
1,2-Dibromoethane	0 / 17	0	–		3.60E-03	c	–	–	–	no
Dibromomethane	0 / 17	0	–		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0 / 17	0	–		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0 / 17	0	–		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0 / 17	0	–		NA	c	–	–	–	no
1,1-Dichloroethane	6 / 17	35.3	0.00172		2.20E+00	c	no	7.82E-04	–	yes
1,2-Dichloroethane	0 / 17	0	–		2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0 / 17	0	–		1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0 / 17	0	–		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0 / 17	0	–		1.80E-01	n	–	–	–	no
Dichloromethane	0 / 17	0	–		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0 / 17	0	–		3.50E-02	c	–	–	–	no

Table E.15-HHRA-6
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
1,3-Dichloropropane	0	/	17	0	–	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	17	0	–	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	17	0	–	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	17	0	–	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	17	0	–	NA	c	–	–	–	no
Ethylbenzene	0	/	17	0	–	7.00E-01	c	–	–	–	no
Iodomethane	0	/	17	0	–	NA	n	–	–	–	no
Isopropylbenzene	0	/	17	0	–	8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	17	0	–	8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	17	0	–	NA	n	–	–	–	no
Methylbenzene	0	/	17	0	–	1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	17	0	–	1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	17	0	–	1.20E+02	c	–	–	–	no
Nitrobenzene	0	/	17	0	–	2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/	17	0	–	3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	17	0	–	8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	17	0	–	1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	17	0	–	3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	17	0	–	3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	17	0	–	3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	17	0	–	4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	17	0	–	NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	17	0	–	2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	17	0	–	3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	17	0	–	2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	17	0	–	2.50E-02	n	–	–	–	no
Trichloroethylene	6	/	17	35.3	0.0357	5.00E-03	c	YES	7.14E+00	–	yes
Vinyl chloride	0	/	17	0	–	2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	17	0	–	2.30E+01	n	–	–	–	no
o-Xylene	0	/	17	0	–	3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds											
n-Nitrosodi-n-butylamine	0	/	17	0	–	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	0	/	17	0	–	NA	n	–	–	–	no
Acenaphthylene	0	/	17	0	–	NA	n	–	–	–	no
Anthracene	0	/	17	0	–	NA	n	–	–	–	no
1-Chloronaphthalene	0	/	17	0	–	NA	n	–	–	–	no
2-Chloronaphthalene	0	/	17	0	–	NA	n	–	–	–	no
Fluorene	0	/	17	0	–	NA	n	–	–	–	no
1-Methylnaphthalene	0	/	17	0	–	NA	c	–	–	–	no
2-Methylnaphthalene	0	/	17	0	–	3.30E+00	n	–	–	–	no
Naphthalene	0	/	17	0	–	1.50E-01	c	–	–	–	no
Phenanthrene	0	/	17	0	–	NA	n	–	–	–	no

Table E.15-HHRA-6
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Total Maximum / Screening Level Ratios						7	NA	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)						7.E-05	NA	
					Target Organ Max/SL Ratios			
					Kidney and Liver		NA	
					Brain		NA	
					Nasal		NA	
					Eyes		NA	
					Skin		NA	
					Lungs		NA	
					Gastrointestinal Tract and Forestomach		NA	
					Whole Body		NA	
					Blood		NA	
					Nervous System		NA	
					Dental		NA	
					Red Blood Cells		NA	
					Glands		NA	
					Fetus		NA	
					Immune System		NA	
					Development		NA	
					Reproduction		NA	
					Bone		NA	
					Not Available/ Not Reported		NA	

Notes:

– = Not applicable.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.

[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^{5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.15-HHRA-7
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Chloroform	no	no	no	no	yes	–	–	–	1.65E-03
Chloromethane	no	no	no	no	yes	–	–	–	1.91E-03 m
1,1-Dichloroethane	no	no	no	no	yes	–	–	–	1.72E-03
Trichloroethylene	no	no	no	no	yes	–	–	–	3.57E-02

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.15-HHRA-8
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Managmene Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Groundwater Concentration C_W (µg/L)	Chemical
67663	1.65	Chloroform
74873	1.91	Chlomomethane
75343	1.72	1,1-Dichloroethane
79016	35.7	Trichloroethylene

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
16.7	15	579	579	0	0	A	SIL	SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	(Lookup Soil Parameters)				(Lookup Soil Parameters)
SIL	1.55	0.440	0.26					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)
10	40	1000	1000	244	0.1	0.25

Table E.15-HHRA-9
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Managmene Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical Name	Enthalpy of vaporization at ave. gw temp $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. gw temp H_{TS} (atm-m^3/mol)	Henry's law constant at ave. gw temp H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Chloroform	7,638	2.54E-03	1.07E-01	1.77E-04	1.78E-03	2.00E-04	9.12E-04	1.76E+02	1.65E+00	1.78E-03	1.11E+10	4.96E-05	8.73E-03
Chloromethane	4,405	7.13E-03	3.00E-01	1.77E-04	2.16E-03	2.28E-04	1.07E-03	5.72E+02	1.65E+00	2.16E-03	2.05E+08	5.34E-05	3.06E-02
1,1-Dichloroethane	7,492	3.91E-03	1.65E-01	1.77E-04	1.27E-03	1.42E-04	6.49E-04	2.83E+02	1.65E+00	1.27E-03	1.20E+14	4.14E-05	1.17E-02
Trichloroethylene	8,501	6.83E-03	2.87E-01	1.77E-04	1.35E-03	1.46E-04	6.76E-04	1.03E+04	1.65E+00	1.35E-03	1.76E+13	4.24E-05	4.35E-01

Table E.15-HHRA-10

Estimates of Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Saturated Vadose Zone Soil Water (EPCgw) [a] (mg/L)		Exposure Point Concentration in Indoor Air Due to Saturated Vadose Zone Soil Water (EPCair_gw) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Chloroform	1.65E-03		8.73E-03
Chloromethane	1.91E-03	m	3.06E-02
1,1-Dichloroethane	1.72E-03		1.17E-02
Trichloroethylene	3.57E-02		4.35E-01

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.
USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.
USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.
USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

$\mu g/m^3$	Micrograms per cubic meter.
mg/L	Milligrams per liter.
m	Maximum.

[a] EPCs are presented in table Table E.15-HHRA-7.

[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004b), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002a).

Table E.15-HHRA-11
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Chloroform	8.73E-03		2.30E-02	1.5E-08	18%	9.8E-02	2E-05	21%
Chloromethane	3.06E-02	m	NA	NA	–	9.0E-02	7E-05	79%
1,1-Dichloroethane	1.17E-02		1.60E-03	1.4E-09	2%	NA	NA	–
Trichloroethylene	4.35E-01		2.00E-03	6.4E-08	80%	NA	NA	–
			Total ELCR	8E-08	100%	Total HI	0.00009	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.00002	HI (gastrointestinal tract) = NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.00009	HI (nasal, lung) = NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) = NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) = NA

[a] From Table E.15-HHRA-10.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m^3	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	$\mu g/m^3$	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.15-HHRA-12
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Chloroform	8.73E-03		2.30E-02	8E-08	18%	9.8E-02	9E-05	21%
Chloromethane	3.06E-02	m	NA	NA	–	9.0E-02	3E-04	79%
1,1-Dichloroethane	1.17E-02		1.60E-03	8E-09	2%	NA	NA	–
Trichloroethylene	4.35E-01		2.00E-03	4E-07	80%	NA	NA	–
			Total ELCR	4E-07	100%	Total HI	0.0004	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.00009	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.0004	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	NA

[a] From Table Table E.15-HHRA-10.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.15-HHRA-13
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 148 (SWMU 148)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Excess Lifetime Cancer Risk and Total non-cancer Hazard Index

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Vapor Migration to Indoor Air	8E-08	0.00009
TOTAL SITE RISKS:	8E-08	0.00009
Hypothetical Future Resident Receptor (Adult and Child)		
Vapor Migration to Indoor Air	4E-07	0.0004
TOTAL SITE RISKS:	4E-07	0.0004

Table E.15.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	10	0	–	0.0249		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	10	0	–	0.00623		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	10	0	–	0.0125		no	1,000	*R4*	NA	no	ND
Benzene	0	/	10	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	10	0	–	0.411		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	10	0	–	0.411		no	NA		NA	no	ND
Bromodichloromethane	0	/	10	0	–	0.00623		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	10	0	–	0.0125		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	10	0	–	0.0249		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	10	0	–	0.00623		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	10	0	–	0.00623		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	10	0	–	0.0125		no	16.4	*R5*	NA	no	ND
Chlorobenzene	0	/	10	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	10	0	–	0.00623		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	10	0	–	0.0125		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	10	0	–	0.0125		no	NA		NA	no	ND
Chloroform	0	/	10	0	–	0.00623	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	10	0	–	0.0125		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	10	0	–	0.411	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0	/	10	0	–	0.411		no	600	*R4s*	NA	no	ND
Dibromomethane	0	/	10	0	–	0.00623		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	10	0	–	0.00623		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	10	0	–	0.00623		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	10	0	–	0.00623		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	10	0	–	0.0125		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	10	0	–	0.00623		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	10	0	–	0.00623		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	10	0	–	0.00623		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	10	0	–	0.00623		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	10	0	–	0.00623		no	0.784	*R5*	NA	no	ND
Dichloromethane	1	/	9	11.1	0.00846	0.00623		no	2	*R4*	0.004	no	HQ ≤ 1
1,2-Dichloropropane	0	/	10	0	–	0.00623		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	10	0	–	0.00623		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	10	0	–	0.00623		no	0.398	*R5*	NA	no	ND
Ethyl methacrylate	0	/	10	0	–	0.00623		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	10	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	10	0	–	0.0125		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	10	0	–	0.0249		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	10	0	–	0.00623		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	10	0	–	0.0249		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	10	0	–	0.411		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	10	0	–	0.00623		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	10	0	–	0.00623		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	10	0	–	0.00623		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	10	0	–	0.00623		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	10	0	–	0.00623		no	28.6	*R5*	NA	no	ND

Table E.15.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,2,3-Trichloropropane	0	/	10	0	–	0.00623		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	10	0	–	0.411		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	10	0	–	0.00623	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	10	0	–	0.0249		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	10	0	–	0.0125	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	10	0	–	0.00623		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	10	0	–	1.99		no	NA		NA	no	ND
Benzoic acid	0	/	10	0	–	1.99		no	NA		NA	no	ND
Benzyl alcohol	0	/	10	0	–	0.411		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	10	0	–	0.411	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	10	0	–	0.411	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	10	0	–	0.411		no	NA		NA	no	ND
p-Chloroaniline	0	/	10	0	–	0.411		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	10	0	–	0.411		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	10	0	–	0.411		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	10	0	–	0.411		no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	10	0	–	0.411		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	10	0	–	0.411		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	10	0	–	0.411	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	10	0	–	1.99		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	10	0	–	0.411		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/	10	0	–	1.99		no	NA		NA	no	ND
Dimethyl phthalate	0	/	10	0	–	0.411		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	10	0	–	0.411		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	10	0	–	0.411		no	709	*R5*	NA	no	ND
Diphenylamine	0	/	10	0	–	1.24	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	10	0	–	0.411	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	10	0	–	0.411	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	10	0	–	0.411		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	10	0	–	0.411		no	0.596	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	10	0	–	1.99	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	10	0	–	0.411		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	10	0	–	0.411		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	10	0	–	1.99		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	10	0	–	1.99		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	10	0	–	1.99		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	10	0	–	0.411		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	10	0	–	1.99		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	10	0	–	0.411		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	10	0	–	0.411		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	10	0	–	1.99		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	10	0	–	0.411		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	10	0	–	0.00846		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	10	0	–	0.411		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	10	0	–	0.411		no	10	*R4*	NA	no	ND

Table E.15.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	10	0	–	0.411		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	10	0	–	0.411		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	9	0	–	0.411		no	682	*R5*	NA	no	ND
Anthracene	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	10	0	–	0.411		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	10	0	–	0.411	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	10	0	–	0.411		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	10	0	–	0.411		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	10	0	–	0.411		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	10	0	–	0.411	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	10	0	–	0.411	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	10	0	–	0.411		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	10	0	–	0.411		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	10	0	–	0.411		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	10	0	–	0.411		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	10	0	–	0.411	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	0	/	10	0	–	37.3		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	10	0	–	0.411	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	6	/	10	60	8.56	3.12		no	18	*EcoSSL*	0.5	no	HQ ≤ 1
Barium	10	/	10	100	112	–		YES	330	*EcoSSL*	0.3	no	≤ BKGD
Cadmium	0	/	10	0	–	6.23	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	1	/	13	7.69	6.4	31.2		no	26	*EcoSSL*	0.2	no	HQ ≤ 1
Chromium (Hexavalent)	0	/	12	0	–	1.25		no	130	*EcoSSL*	NA	no	ND
Lead	9	/	10	90	8.17	2.8		no	11	*EcoSSL*	0.7	no	HQ ≤ 1
Mercury	2	/	10	20	0.0474	0.0249		YES	0.1	*R4*	0.5	no	≤ BKGD
Selenium	0	/	10	0	–	3.12	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	4	/	10	40	72.4	31.2		no	4.2	*EcoSSL*	20	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.15.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	4	/	37	10.8	0.42	0.1		no	2.5	*R5*	0.2	no	HQ ≤ 1
Acrolein	0	/	37	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	37	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	37	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	37	0	–	0.458		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	37	0	–	0.458		no	NA		NA	no	ND
Bromodichloromethane	0	/	30	0	–	0.0113		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	37	0	–	0.0226		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	37	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	37	0	–	0.0113		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	37	0	–	0.0113		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	37	0	–	0.0226		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	7	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	37	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	37	0	–	0.0113		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	37	0	–	0.0226		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	37	0	–	0.0226		no	NA		NA	no	ND
Chloroform	0	/	37	0	–	0.0113	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	37	0	–	0.0226		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	37	0	–	0.458	^	no	0.243	*R5*	NA	no	ND
Dibenzofuran	0	/	30	0	–	0.458		no	600	*R4s*	NA	no	ND
Dibromomethane	0	/	37	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	37	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	37	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	37	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	37	0	–	0.0226		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	37	0	–	0.0113		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	37	0	–	0.0113		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	37	0	–	0.0113		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	30	0	–	0.0113		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	37	0	–	0.0113		no	0.784	*R5*	NA	no	ND
Dichloromethane	4	/	34	11.8	0.009	0.0069		no	2	*R4*	0.005	no	HQ ≤ 1
1,2-Dichloropropane	0	/	37	0	–	0.0113		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	37	0	–	0.0113		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	37	0	–	0.0113		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	7	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	37	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	37	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	37	0	–	0.0226		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	37	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	37	0	–	0.0113		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	37	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	37	0	–	0.458		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	37	0	–	0.0113		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	37	0	–	0.0113		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	37	0	–	0.0113		no	0.127	*R5*	NA	no	ND

Table E.15.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,1,1-Trichloroethane	0	/	37	0	–	0.0113		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	37	0	–	0.0113		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	37	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	37	0	–	0.458		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	37	0	–	0.0113	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	37	0	–	0.0452		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	37	0	–	0.0226	^	no	0.01	*R4*	NA	no	ND
Xylenes	0	/	37	0	–	0.0113		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	37	0	–	2.22		no	NA		NA	no	ND
Benzoic acid	0	/	37	0	–	2.22		no	NA		NA	no	ND
Benzyl alcohol	0	/	30	0	–	0.458		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	37	0	–	0.458	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	37	0	–	0.458	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	37	0	–	0.458		no	NA		NA	no	ND
p-Chloroaniline	0	/	30	0	–	0.458		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	37	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	37	0	–	0.458		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	37	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	37	0	–	0.458		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	37	0	–	0.458		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	37	0	–	0.458	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	37	0	–	2.22		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	37	0	–	0.458		no	1.28	*R5*	NA	no	ND
1,2-Diphenylhydrazine	0	/	30	0	–	2.22		no	NA		NA	no	ND
Dimethyl phthalate	0	/	37	0	–	0.458		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	1	/	37	2.7	0.592	0.458		no	200	*R4*	0.003	no	HQ ≤ 1
Di-n-octyl phthalate	0	/	37	0	–	0.458		no	709	*R5*	NA	no	ND
Diphenylamine	0	/	30	0	–	1.39	^	no	1.01	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	37	0	–	0.458	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	37	0	–	0.458	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	37	0	–	0.458		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	37	0	–	0.458		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	7	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	37	0	–	2.22	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	30	0	–	0.458		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	30	0	–	0.458		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	30	0	–	2.22		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	30	0	–	2.22		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	30	0	–	2.22		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	37	0	–	0.458		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	37	0	–	2.22		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	37	0	–	0.458		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	37	0	–	0.458		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	37	0	–	2.22	^	no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	37	0	–	0.458		no	120	*R5*	NA	no	ND

Table E.15.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Tribromomethane	0	/	30	0	–	0.0113		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	30	0	–	0.458		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	37	0	–	0.458		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	37	0	–	0.458		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	37	0	–	0.458		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	34	0	–	0.458		no	682	*R5*	NA	no	ND
Anthracene	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	37	0	–	0.458		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	37	0	–	0.458	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	37	0	–	0.458		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	37	0	–	0.458		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	37	0	–	0.458		no	4.73	*R5*	NA	no	ND
1-Chloronaphthalene	0	/	30	0	–	0.458	^	no	0.0122	*R5s*	NA	no	ND
2-Chloronaphthalene	0	/	37	0	–	0.458	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	37	0	–	0.458		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	37	0	–	0.458		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	37	0	–	0.458		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	30	0	–	0.458		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	37	0	–	0.458	^	no	0.1	*R4*	NA	no	ND
Pesticides													
Aldrin	0	/	6	0	–	0.0034	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	6	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	6	0	–	0.0034		no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	6	0	–	0.067		no	0.119	*R5*	NA	no	ND
Chlordane	0	/	6	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	6	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	6	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	6	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	6	0	–	0.0034		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	6	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	6	0	–	0.0034		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	6	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	6	0	–	0.0067	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	6	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	6	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	6	0	–	0.0034		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	6	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	6	0	–	0.0034		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-el	0	/	6	0	–	0.034	^	no	0.0199	*R5*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	7	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	37	0	–	41.6		no	10,000	*API*	NA	no	ND

Table E.15.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Polychlorinated Biphenyls													
Aroclor 1221	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1016	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1248	0	/	6	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	37	0	–	0.458	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	17	/	36	47.2	9.64	3.47		no	18	*EcoSSL*	0.5	no	HQ ≤ 1
Barium	30	/	36	83.3	179	110		YES	330	*EcoSSL*	0.5	no	≤ BKGD
Cadmium	0	/	36	0	–	12.8	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	2	/	38	5.26	19.3	34.7		no	26	*EcoSSL*	0.7	no	HQ ≤ 1
Chromium (Hexavalent)	0	/	36	0	–	6.41		no	130	*EcoSSL*	NA	no	ND
Lead	15	/	36	41.7	14.7	27		no	11	*EcoSSL*	1	no	HQ ≤ 1
Mercury	3	/	36	8.33	0.0474	0.1		YES	0.1	*R4*	0.5	no	≤ BKGD
Selenium	0	/	36	0	–	3.47	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	12	/	36	33.3	74.8	34.7		no	4.2	*EcoSSL*	20	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.15.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Silver	72.4	m	4.2	*EcoSSL*	20	**YES**	**HQ > 1**	YES

Notes:
BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.15.ERA-4
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [e] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics							
Silver	26.86	4.2	*EcoSSL*	6	**YES**	**HQ > 1**	YES

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.15.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]				
	BERA COPEC?		0-2 ft bgs			0-10 ft bgs	
	0-2 ft bgs	0-10 ft bgs	Maximum		Refined	Maximum	Refined
Constituent			**Scenario**		**Scenario**	**Scenario**	**Scenario**
Inorganics							
Silver	YES	YES	72.4	m	26.1	26.86	21.8

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
ft bgs = Feet below ground surface.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SQL = Sample Quantitation Limit.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.15.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.68E-03	1.22E-01	0.23	6	0.6	0.04	0.4

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Silver	26.1	3.42E-01	1.68E-03	8.91E+00	4.38E-02	0.14	6	0.6	0.02	0.2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detecte EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	3.42E-01	2.47E+01	30	6	0.6	5	50

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL v
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	26.1	3.42E-01	8.91E+00	11	6	0.6	2	18

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day : Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.28E-03	9.27E-02	0.082	6	0.6	0.01	0.1

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Silver	26.1	3.42E-01	1.68E-03	1.28E-03	8.91E+00	4.38E-02	3.34E-02	0.0000019	6	0.6	0.0000003	0.000003

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day : Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	26.86	1.28E-03	3.44E-02	0.03	6	0.6	0.005	0.05

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Silver	21.8	3.42E-01	1.68E-03	1.28E-03	7.45E+00	3.66E-02	2.79E-02	0.0000016	6	0.6	0.0000003	0.000003

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day : Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.68E-03	1.22E-01	0.39	2.02	0.202	0.2	2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Silver	26.1	3.42E-01	1.68E-03	8.91E+00	4.38E-02	0.000049	2.02	0.202	0.00002	0.0002

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	3.42E-01	2.47E+01	28	2.02	0.202	14	139

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Silver	26.1	3.42E-01	1.68E-03	8.91E+00	4.38E-02	0.25	2.02	0.202	0.1	1

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Silver	72.4	m	1.28E-03	9.27E-02	0.1	2.02	0.202	0.05	0.5

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Silver	26.1	1.28E-03	3.34E-02	0.0000021	2.02	0.202	0.000001	0.00001

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.15.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil			BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection		EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples		(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics																		
Silver	4	- 10	26.1	20	EcoSSL	avi	0.02	0.2	**2**	**18**	0.0000003	0.000003	0.00002	0.0002	0.1	1	0.000001	0.00001

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.15.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Inorganics									
Silver	12	-	36	21.8	6	EcoSSL	avi	0.0000003	0.000003

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.16.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	1	-	2	50	0.37	-	0.37	0.1	-	0.1	HMW-17(5/12/1992)	0.21	–
Acrolein	0	-	2	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
2-Butanone	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Carbon disulfide	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Carbon tetrachloride	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
CFC-11	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chlorodibromomethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloroethane	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroform	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloromethane	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	2	0	–	-	–	0.0003	-	0.0003	–	0.00015	–
Dibromomethane	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4-Dichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4 Dichloro-2-butene	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1-Dichloroethylene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Dichloromethane	0	-	2	0	–	-	–	0.005	-	0.01	–	0.00375	–
1,2-Dichloropropane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
cis-1,3-Dichloropropene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Ethanol	0	-	2	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Iodomethane	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.16.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	2	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	2	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	2	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	2	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	2	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorobenzene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	2	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.16.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	2	0	–	-	–	0.00033	-	0.00033	–	0.000165	–
2-Nitrophenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	2	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4,6-Trichlorophenol	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	2	0	–	-	–	0.0003	-	0.0003	–	0.00015	–
Anthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Pesticides													
Aldrin	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
alpha-BHC	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
beta-BHC	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Camphechlor	0	-	2	0	–	-	–	0.067	-	0.067	–	0.0335	–
Chlordane	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
4,4-DDD	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDE	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
4,4-DDT	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
delta-BHC	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Dieldrin	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–

Table E.16.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Endosulfan I	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Endosulfan II	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan sulfate	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin aldehyde	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor epoxide	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethan	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	2	0	–	-	–	14	-	14	–	7	–
Total Petroleum Hydrocarbons (TPH)	0	-	2	0	–	-	–	14	-	14	–	7	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1232	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1242	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1254	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1260	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1016	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1248	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Explosives													
2,6-Dinitrotoluene	0	-	2	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	1	-	2	50	0.78	-	0.78	0.43	-	0.43	HMW-17(5/12/1992)	0.498	–
Barium	0	-	2	0	–	-	–	98	-	110	–	52	–
Cadmium	0	-	2	0	–	-	–	2.5	-	2.7	–	1.3	–
Lead	0	-	2	0	–	-	–	25	-	27	–	13	–
Mercury	0	-	2	0	–	-	–	0.1	-	0.1	–	0.05	–
Selenium	0	-	2	0	–	-	–	0.43	-	0.52	–	0.238	–
Silver	0	-	2	0	–	-	–	4.9	-	5.5	–	2.6	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

Table E.16.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.16.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	1	-	4	25	0.37	-	0.37	0.1	-	0.1	HMW-17(5/12/1992)	0.13	–	Y
Acrolein	0	-	4	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
Acrylonitrile	0	-	4	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
Benzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Bis(2-chloroethyl)ether	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Bis(2-chloroisopropyl)ether	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Bromomethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Butanone	0	-	4	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
Carbon disulfide	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Carbon tetrachloride	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
CFC-11	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
CFC-12	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Chlorobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chlorodibromomethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Chloroethane	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chloroethyl vinyl ether	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chloroform	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloromethane	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chlorophenol	0	-	4	0	–	-	–	0.0003	-	0.0003	–	0.00015	–	Y
Dibromomethane	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,2-Dichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
1,4-Dichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
1,4 Dichloro-2-butene	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,1-Dichloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1-Dichloroethylene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
trans-1,2-Dichloroethene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Dichloromethane	0	-	4	0	–	-	–	0.005	-	0.01	–	0.00313	–	Y
1,2-Dichloropropane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
cis-1,3-Dichloropropene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
trans-1,3-Dichloropropene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Ethanol	0	-	4	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Ethylbenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Iodomethane	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
m-Dichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y

Table E.16.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Methyl n-butyl ketone	0	-	4	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methylbenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	4	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Nitrobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Styrene (monomer)	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Tetrachloroethene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,2,2-Tetrachloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,1-Trichloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,2-Trichloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,2,4-Trichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Trichloroethylene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Vinyl acetate	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Vinyl chloride	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	4	0	–	-	–	1.7	-	1.7	–	0.85	–	N
Benzoic acid	0	-	4	0	–	-	–	2	-	2	–	1	–	N
Benzyl butyl phthalate	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Bis(2-chloroethoxy)methane	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Bis(2-ethylhexyl)phthalate	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Bromophenyl phenyl ether	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Chloro-3-methylphenol	0	-	4	0	–	-	–	0.7	-	0.7	–	0.35	–	N
4-Chlorophenyl phenyl ether	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
3,3'-Dichlorobenzidine	0	-	4	0	–	-	–	0.7	-	0.7	–	0.35	–	N
2,4-Dichlorophenol	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Diethyl phthalate	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4-Dimethylphenol	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4-Dinitrophenol	0	-	4	0	–	-	–	2	-	2	–	1	–	N
2,4-Dinitrotoluene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Dimethyl phthalate	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Di-n-butyl phthalate	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Di-n-octyl phthalate	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachloro-1,3-butadiene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachlorocyclopentadiene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachloroethane	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Methanamine, n-methyl-n-nitroso	0	-	4	0	–	-	–	0.33	-	0.33	–	0.165	–	N

Table E.16.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
2-Methyl-4,6-dinitrophenol	0	-	4	0	–	-	–	0.00033	-	0.00033	–	0.000165	–	N
2-Nitrophenol	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Nitrophenol	0	-	4	0	–	-	–	2	-	2	–	1	–	N
n-Nitrosodi-n-propylamine	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
n-Nitrosodiphenylamine	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Pentachlorophenol	0	-	4	0	–	-	–	2	-	2	–	1	–	N
Phenol	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4,6-Trichlorophenol	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Acenaphthylene	0	-	4	0	–	-	–	0.0003	-	0.0003	–	0.00015	–	Y
Anthracene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Benzo(a)anthracene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(a)pyrene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(b)fluoranthene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(g,h,i)perylene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(k)fluoranthene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
1,2-Benzphenanthracene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2-Chloronaphthalene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Dibenz(a,h)anthracene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Fluoranthene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Fluorene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Indeno(1,2,3-cd)pyrene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Naphthalene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Phenanthrene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Pyrene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Pesticides														
Aldrin	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
alpha-BHC	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
beta-BHC	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Camphechlor	0	-	4	0	–	-	–	0.067	-	0.067	–	0.0335	–	N
Chlordane	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
4,4-DDD	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDE	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDT	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
delta-BHC	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Dieldrin	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N

Table E.16.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Endosulfan I	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Endosulfan II	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endosulfan sulfate	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin aldehyde	0	-	4	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
gamma-BHC	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor epoxide	0	-	4	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Total Petroleum Hydrocarbons (TPH)														
Petroleum hydrocarbons	0	-	4	0	–	-	–	11	-	14	–	6.5	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	4	0	–	-	–	11	-	14	–	6.5	–	N
Polychlorinated Biphenyls														
Aroclor 1221	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1232	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1242	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1254	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1260	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1016	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1248	0	-	4	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Explosives														
2,6-Dinitrotoluene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Inorganics														
Arsenic	3	-	4	75	0.78	-	2.7	0.43	-	0.43	HMW-17(5/12/1992)	1.27	–	N
Barium	2	-	4	50	77	-	400	98	-	110	HMW-17(5/12/1992)	145	–	N
Cadmium	0	-	4	0	–	-	–	0.51	-	2.7	–	0.829	–	N
Lead	1	-	4	25	7.1	-	7.1	9.2	-	27	HMW-17(5/12/1992)	9.43	–	N
Mercury	0	-	4	0	–	-	–	0.08	-	0.1	–	0.0475	–	N
Selenium	0	-	4	0	–	-	–	0.43	-	0.52	–	0.233	–	N
Silver	0	-	4	0	–	-	–	1	-	5.5	–	1.65	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

Table E.16.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)				

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.16.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Acrylonitrile	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bis(2-chloroethyl)ether	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Bis(2-chloroisopropyl)ether	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Bromobenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Butanone	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
sec-Butylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
tert-Butylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon tetrachloride	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-12	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chloromethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chlorophenol	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Chlorotoluene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibenzofuran	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,2-Dibromoethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,4-Dichlorobenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,4-Dichlorobutene	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y

Table E.16.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	1	-	4	25	0.00101	-	0.00101	0.001	-	0.001	HMW-14	0.000628	–	Y
cis-1,2-Dichloroethene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Methyl n-butyl ketone	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	4	0	–	-	–	0.0005	-	0.005	–	0.00194	–	Y
n-Propylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	3	-	4	75	0.00166	-	0.00204	0.001	-	0.001	HMW-14	0.00149	–	Y
Vinyl chloride	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N

Table E.16.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)		Min (mg/L)	-	Max (mg/L)					
Aniline	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Benzidine	0	-	4	0	–	-	–		0.025	-	0.025		–	0.0125	–	N
Benzoic acid	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Benzyl alcohol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Benzyl butyl phthalate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Bis(2-chloroethoxy)methane	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Bis(2-ethylhexyl)phthalate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
4-Bromophenyl phenyl ether	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2-Butoxy ethanol	0	-	2	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
p-Chloroaniline	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
4-Chloro-3-methylphenol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Chlorophenols	0	-	4	0	–	-	–		0.01	-	0.01		–	0.005	–	N
4-Chlorophenyl phenyl ether	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
m,p-Cresol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Dibenz[a,,j]acridine	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
3,3'-Dichlorobenzidine	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2,4-Dichlorophenol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2,6-Dichlorophenol	0	-	4	0	–	-	–		0.01	-	0.01		–	0.005	–	N
Diethyl phthalate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
4-Dimethylaminoazobenzene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2,4-Dimethylphenol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2,4-Dinitrophenol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2,4-Dinitrotoluene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
a,a-Dimethylphenethylamine	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Dimethyl phthalate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Di-n-butyl phthalate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
m-Dinitrobenzene	0	-	1	0	–	-	–		0.0005	-	0.0005		–	0.00025	–	N
Di-n-octyl phthalate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
1,4-Dioxane	0	-	2	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Diphenylamine	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Diphenylhydrazine	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Ethyl methanesulfonate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Hexachloro-1,3-butadiene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Hexachlorobenzene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Hexachlorocyclopentadiene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Hexachloroethane	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Methanamine, n-methyl-n-nitroso	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
2-Methyl-4,6-dinitrophenol	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N
Methyl methanesulfonate	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–	N

Table E.16.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
2-Methylphenol	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Methyl pyridine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1-Naphthylamine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Naphthylamine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Nitroaniline	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
3-Nitroaniline	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
p-Nitroaniline	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Nitrophenol	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
4-Nitrophenol	0	-	4	0	–	-	–	0.025	-	0.025	–	0.0125	–	N
n-Nitrosodi-n-butylamine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Nitrosodi-n-propylamine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
n-Nitrosopiperidine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pentachlorobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pentachlorophenol	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Phenacetin	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Phenol	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Propyzamide	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pyridine	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,2,4,5-Tetrachlorobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Tribromomethane	0	-	4	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,4,6-Trichlorophenol	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,3,5-Trinitrobenzene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Acenaphthylene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Anthracene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Benzo(a)anthracene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(a)pyrene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(b)fluoranthene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(g,h,i)perylene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(k)fluoranthene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,2-Benzphenanthracene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1-Chloronaphthalene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Chloronaphthalene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Dibenz(a,h)anthracene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
7,12-Dimethylbenz(a)anthracene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Fluoranthene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N

Table E.16.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Fluorene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Indeno(1,2,3-cd)pyrene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
3-Methylchloranthrene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1-Methylnaphthalene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Methylnaphthalene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Naphthalene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Phenanthrene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Pyrene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pesticides														
Pentachloronitrobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	4	0	–	-	–	5	-	5	–	2.5	–	N
Gasoline Range Organics (GRO)	0	-	4	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Explosives														
4-Amino-dnt / 2-Amino-dnt	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,6-Dinitrotoluene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,6-DNT / 2,4-DNT	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2-Nitrotoluene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
3-Nitrotoluene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Nitrotoluene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocin	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
RDX	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Tetryl	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
2,4,6-Trinitrotoluene	0	-	1	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Inorganics														
Ammonia	0	-	2	0	–	-	–	1	-	1	–	0.5	–	N
Antimony	0	-	2	0	–	-	–	0.02	-	0.02	–	0.01	–	N
Arsenic	0	-	2	0	–	-	–	0.005	-	0.01	–	0.00375	–	N
Barium	2	-	2	100	0.011	-	0.012	–	-	–	HMW-14	0.0115	–	N
Beryllium	0	-	2	0	–	-	–	0.002	-	0.002	–	0.001	–	N
Cadmium	1	-	4	25	0.002	-	0.002	0.001	-	0.002	HMW-17	0.001	–	N
Chromium	3	-	4	75	0.012	-	0.024	0.005	-	0.005	HMW-14	0.0134	–	N
Cobalt	0	-	2	0	–	-	–	0.002	-	0.002	–	0.001	–	N
Copper	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Fluoride	3	-	4	75	5.11	-	5.34	0.2	-	0.2	HMW-17	3.92	–	N
Lead	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Mercury	0	-	2	0	–	-	–	0.0002	-	0.0002	–	0.0001	–	N
Nickel	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Nitrate	2	-	2	100	8.13	-	223	–	-	–	HMW-14	116	–	N

Table E.16.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Nitrate + Nitrite	2	-	2	100	166	-	3020	–	-	–	HMW-14	1590	–	N
Phosphorus	0	-	2	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Selenium	2	-	2	100	0.21	-	0.233	–	-	–	HMW-14	0.222	–	N
Silver	0	-	4	0	–	-	–	0.002	-	0.005	–	0.00175	–	N
Sodium	2	-	2	100	1110	-	12200	–	-	–	HMW-14	6660	–	N
Sulfate	4	-	4	100	2950	-	16400	–	-	–	HMW-14	11900	–	N
Thallium	0	-	2	0	–	-	–	0.02	-	0.05	–	0.0175	–	N
Tin	0	-	2	0	–	-	–	0.025	-	0.1	–	0.0313	–	N
Vanadium	0	-	2	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Zinc	0	-	4	0	–	-	–	0.005	-	0.007	–	0.00275	–	N
Other														
Bromide	1	-	2	50	6.51	-	6.51	1	-	1	HMW-14	3.51	–	N
Chloride	4	-	4	100	88.2	-	9770	–	-	–	HMW-14	6820	–	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.16-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds												
Acetone	1	2	50	0.37	0.1	–	2.63E+05	n	no	–	1.41E-06	no
Acrolein	0	2	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	2	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	2	0	–	0.005	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	2	0	–	0.3	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	2	0	–	0.3	–	3.10E+03	c	–	–	–	no
Bromomethane	0	2	0	–	0.005	–	6.71E+01	n	–	–	–	no
2-Butanone	0	2	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	2	0	–	0.005	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	2	0	–	0.005	–	1.99E+02	n	–	–	–	no
CFC-11	0	2	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	2	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	2	0	–	0.005	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	2	0	–	0.005	–	1.99E+03	c	–	–	–	no
Chloroethane	0	2	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	2	0	–	0.01	–	NA	n	–	–	–	no
Chloroform	0	2	0	–	0.005	–	6.71E+02	c	–	–	–	no
Chloromethane	0	2	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	2	0	–	0.0003	–	1.55E+03	n	–	–	–	no
Dibromomethane	0	2	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	2	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	2	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	2	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	2	0	–	0.005	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	2	0	–	0.005	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	2	0	–	0.005	–	1.83E+03	n	–	–	–	no
trans-1,2-Dichloroethene	0	2	0	–	0.005	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	2	0	–	0.01	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	2	0	–	0.005	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	2	0	–	0.005	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	2	0	–	0.005	–	5.10E+02	n	–	–	–	no
Ethanol	0	2	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	2	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	2	0	–	0.005	–	6.63E+03	c	–	–	–	no
Iodomethane	0	2	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	2	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	2	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	2	0	–	0.005	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	2	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	2	0	–	0.3	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	2	0	–	0.005	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	2	0	–	0.005	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	2	0	–	0.005	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	2	0	–	0.005	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	2	0	–	0.005	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	2	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	2	0	–	0.3	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	2	0	–	0.005	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	2	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	2	0	–	0.01	–	2.48E+02	c	–	–	–	no
Xylenes	0	2	0	–	0.005	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds												
Benzidine	0	2	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	2	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl butyl phthalate	0	2	0	–	0.3	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	2	0	–	0.3	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	2	0	–	0.3	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	2	0	–	0.3	–	NA	n	–	–	–	no
4-Chloro-3-methylphenol	0	2	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	2	0	–	0.3	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	2	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	2	0	–	0.3	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	2	0	–	0.3	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	2	0	–	0.3	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	2	0	–	2	–	4.76E+02	n	–	–	–	no

Table E.16-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
2,4-Dinitrotoluene	0	/ 2	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/ 2	0	–	0.3	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/ 2	0	–	0.3	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/ 2	0	–	0.3	–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/ 2	0	–	0.3	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/ 2	0	–	0.3	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/ 2	0	–	0.3	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/ 2	0	–	0.3	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/ 2	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/ 2	0	–	0.0003	–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/ 2	0	–	0.3	–	NA	n	–	–	–	no
4-Nitrophenol	0	/ 2	0	–	2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/ 2	0	–	0.3	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/ 2	0	–	0.3	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/ 2	0	–	2	–	1.03E+03	c	–	–	–	no
Phenol	0	/ 2	0	–	0.3	–	6.88E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/ 2	0	–	0.3	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/ 2	0	–	0.3	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/ 2	0	–	0.3	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/ 2	0	–	0.0003	–	1.34E+04	n	–	–	–	no
Anthracene	0	/ 2	0	–	0.3	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/ 2	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/ 2	0	–	0.3	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/ 2	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/ 2	0	–	0.3	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/ 2	0	–	0.3	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/ 2	0	–	0.3	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/ 2	0	–	0.3	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/ 2	0	–	0.3	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/ 2	0	–	0.3	–	8.91E+03	n	–	–	–	no
Fluorene	0	/ 2	0	–	0.3	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/ 2	0	–	0.3	–	2.13E+02	c	–	–	–	no
Naphthalene	0	/ 2	0	–	0.3	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/ 2	0	–	0.3	–	7.15E+03	n	–	–	–	no
Pyrene	0	/ 2	0	–	0.3	–	6.68E+03	n	–	–	–	no
Pesticides												
Aldrin	0	/ 2	0	–	0.0034	–	7.15E+00	n	–	–	–	no
alpha-BHC	0	/ 2	0	–	0.0034	–	2.63E+01	c	–	–	–	no
beta-BHC	0	/ 2	0	–	0.0034	–	9.19E+01	c	–	–	–	no
Camphechlor	0	/ 2	0	–	0.067	–	1.50E+02	c	–	–	–	no
Chlordane	0	/ 2	0	–	0.034	–	1.35E+02	n	–	–	–	no
4,4-DDD	0	/ 2	0	–	0.0067	–	6.95E+02	c	–	–	–	no
4,4-DDE	0	/ 2	0	–	0.0067	–	4.90E+02	c	–	–	–	no
4,4-DDT	0	/ 2	0	–	0.0067	–	1.42E+02	n	–	–	–	no
delta-BHC	0	/ 2	0	–	0.0034	–	8.30E+01	n	–	–	–	no
Dieldrin	0	/ 2	0	–	0.0067	–	1.03E+01	c	–	–	–	no
Endosulfan I	0	/ 2	0	–	0.0034	–	1.43E+03	n	–	–	–	no
Endosulfan II	0	/ 2	0	–	0.0067	–	1.43E+03	n	–	–	–	no
Endosulfan sulfate	0	/ 2	0	–	0.0067	–	1.43E+03	n	–	–	–	no
Endrin	0	/ 2	0	–	0.0067	–	7.15E+01	n	–	–	–	no
Endrin aldehyde	0	/ 2	0	–	0.0067	–	7.15E+01	n	–	–	–	no
gamma-BHC	0	/ 2	0	–	0.0034	–	8.30E+01	n	–	–	–	no
Heptachlor	0	/ 2	0	–	0.0034	–	3.68E+01	c	–	–	–	no
Heptachlor epoxide	0	/ 2	0	–	0.0034	–	3.10E+00	n	–	–	–	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-	0	/ 2	0	–	0.034	–	1.19E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)												
Total Petroleum Hydrocarbons (TPH)	0	/ 2	0	–	14	–	NA	n	–	–	–	no
Polychlorinated Biphenyls												
Aroclor 1221	0	/ 2	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1232	0	/ 2	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1242	0	/ 2	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor 1254	0	/ 2	0	–	0.034	–	4.36E+00	n	–	–	–	no
Aroclor 1260	0	/ 2	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor-1016	0	/ 2	0	–	0.034	–	1.53E+01	n	–	–	–	no
Aroclor-1248	0	/ 2	0	–	0.034	–	7.58E+01	c	–	–	–	no

Table E.16-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Explosives													
2,6-Dinitrotoluene	0	/	2	0	–	0.3	–	2.39E+02	n	–	–	–	no
Inorganics													
Arsenic	1	/	2	50	0.78	0.43	YES	6.54E+01	n	no	–	1.19E-02	no
Barium	0	/	2	0	–	110	YES	4.35E+03	n	–	–	–	no
Cadmium	0	/	2	0	–	2.7	no	3.09E+02	n	–	–	–	no
Lead	0	/	2	0	–	27	no	8.00E+02	IEUBK	–	–	–	no
Mercury	0	/	2	0	–	0.1	no	6.36E+01	n	–	–	–	no
Selenium	0	/	2	0	–	0.52	no	1.55E+03	n	–	–	–	no
Silver	0	/	2	0	–	5.5	no	1.55E+03	n	–	–	–	no
Total Maximum / Screening Level Ratios											NA	0.01	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											NA	0.01	

Target Organ Max/SL Ratios	
Kidney and Liver	0.000001
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.01
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA
Nervous System	NA
Dental	NA
Red Blood Cells	NA
Glands	NA
Fetus	NA
Immune System	NA
Development	NA
Reproduction	NA
Bone	NA
Not Available/ Not Reported	NA

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.16-HHRA-2
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /	number of samples		FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	1	/	4	25	0.37	no
Acrolein	0	/	4	0	–	no
Acrylonitrile	0	/	4	0	–	no
Benzene	0	/	4	0	–	no
Bis(2-chloroethyl)ether	0	/	4	0	–	no
Bis(2-chloroisopropyl)ether	0	/	4	0	–	no
Bromomethane	0	/	4	0	–	no
2-Butanone	0	/	4	0	–	no
Carbon disulfide	0	/	4	0	–	no
Carbon tetrachloride	0	/	4	0	–	no
CFC-11	0	/	4	0	–	no
CFC-12	0	/	4	0	–	no
Chlorobenzene	0	/	4	0	–	no
Chloroethane	0	/	4	0	–	no
2-Chloroethyl vinyl ether	0	/	4	0	–	no
Chloroform	0	/	4	0	–	no
Chloromethane	0	/	4	0	–	no
2-Chlorophenol	0	/	4	0	–	no
Dibromomethane	0	/	4	0	–	no
1,2-Dichlorobenzene	0	/	4	0	–	no
1,4-Dichlorobenzene	0	/	4	0	–	no
1,4 Dichloro-2-butene	0	/	4	0	–	no
1,1-Dichloroethane	0	/	4	0	–	no
1,2-Dichloroethane	0	/	4	0	–	no
1,1-Dichloroethylene	0	/	4	0	–	no
trans-1,2-Dichloroethene	0	/	4	0	–	no
Dichloromethane	0	/	4	0	–	no
1,2-Dichloropropane	0	/	4	0	–	no
cis-1,3-Dichloropropene	0	/	4	0	–	no
trans-1,3-Dichloropropene	0	/	4	0	–	no
Ethyl methacrylate	0	/	4	0	–	no
Ethylbenzene	0	/	4	0	–	no
Iodomethane	0	/	4	0	–	no
m-Dichlorobenzene	0	/	4	0	–	no
Methyl n-butyl ketone	0	/	4	0	–	no
Methylbenzene	0	/	4	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	4	0	–	no
Nitrobenzene	0	/	4	0	–	no
Styrene (monomer)	0	/	4	0	–	no
Tetrachloroethene	0	/	4	0	–	no
1,1,2,2-Tetrachloroethane	0	/	4	0	–	no
1,1,1-Trichloroethane	0	/	4	0	–	no
1,1,2-Trichloroethane	0	/	4	0	–	no
1,2,3-Trichloropropane	0	/	4	0	–	no
1,2,4-Trichlorobenzene	0	/	4	0	–	no
Trichloroethylene	0	/	4	0	–	no
Vinyl acetate	0	/	4	0	–	no
Vinyl chloride	0	/	4	0	–	no
Xylenes	0	/	4	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	4	0	–	no
Acenaphthylene	0	/	4	0	–	no
Anthracene	0	/	4	0	–	no
2-Chloronaphthalene	0	/	4	0	–	no
Fluorene	0	/	4	0	–	no
Naphthalene	0	/	4	0	–	no
Phenanthrene	0	/	4	0	–	no

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhaltion pathway.

Table E.16-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	4	0	–	0.01	2.20E+02	n	–	–	–	no
Acetophenone	0	/	4	0	–	0.005	8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	4	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	0	/	4	0	–	0.001	1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	4	0	–	0.005	1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	4	0	–	0.005	NA	c	–	–	–	no
Bromobenzene	0	/	4	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0	/	4	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0	/	4	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0	/	4	0	–	0.005	4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	2	0	–	0.005	NA	n	–	–	–	no
n-Butylbenzene	0	/	4	0	–	0.001	2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	4	0	–	0.001	2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	4	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	4	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	4	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	0	/	4	0	–	0.001	1.80E-01	n	–	–	–	no
CFC-12	0	/	4	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	4	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	4	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0	/	4	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	4	0	–	0.005	NA	n	–	–	–	no
Chloroform	0	/	4	0	–	0.001	8.00E-02	c	–	–	–	no
Chloromethane	0	/	4	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorophenol	0	/	4	0	–	0.005	1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	4	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0	/	4	0	–	0.001	NA	n	–	–	–	no
Cymene	0	/	4	0	–	0.001	NA	n	–	–	–	no
Dibenzofuran	0	/	4	0	–	0.005	NA	n	–	–	–	no
1,2-Dibromoethane	0	/	4	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0	/	4	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	4	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	4	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	4	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	0	/	4	0	–	0.001	2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0	/	4	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	1	/	4	25	0.00101	0.001	1.90E-01	n	no	–	5.32E-03	no
cis-1,2-Dichloroethene	0	/	4	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	4	0	–	0.001	1.80E-01	n	–	–	–	no
Dichloromethane	0	/	4	0	–	0.005	5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	4	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	4	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	4	0	–	0.001	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	4	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	4	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	4	0	–	0.001	NA	c	–	–	–	no

Table E.16-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Ethylbenzene	0	/	4	0	–	0.001		7.00E-01	c	–	–	–	no
Iodomethane	0	/	4	0	–	0.005		NA	n	–	–	–	no
Isopropylbenzene	0	/	4	0	–	0.001		8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	4	0	–	0.001		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	4	0	–	0.005		NA	n	–	–	–	no
Methylbenzene	0	/	4	0	–	0.001		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	4	0	–	0.005		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	4	0	–	0.001		1.20E+02	c	–	–	–	no
Nitrobenzene	0	/	4	0	–	0.005		2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/	4	0	–	0.001		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	4	0	–	0.001		8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	4	0	–	0.001		1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	4	0	–	0.001		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	4	0	–	0.001		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	4	0	–	0.001		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	4	0	–	0.001		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	4	0	–	0.005		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	4	0	–	0.001		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	4	0	–	0.005		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	4	0	–	0.001		2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	4	0	–	0.001		2.50E-02	n	–	–	–	no
Trichloroethylene	3	/	4	75	0.00204	0.001		5.00E-03	c	no	4.08E-01	–	no
Vinyl chloride	0	/	4	0	–	0.001		2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	4	0	–	0.001		2.30E+01	n	–	–	–	no
o-Xylene	0	/	4	0	–	0.001		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds													
n-Nitrosodi-n-butylamine	0	/	4	0	–	0.005	^	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	4	0	–	0.005		NA	n	–	–	–	no
Acenaphthylene	0	/	4	0	–	0.005		NA	n	–	–	–	no
Anthracene	0	/	4	0	–	0.005		NA	n	–	–	–	no
1-Chloronaphthalene	0	/	4	0	–	0.005		NA	n	–	–	–	no
2-Chloronaphthalene	0	/	4	0	–	0.005		NA	n	–	–	–	no
Fluorene	0	/	4	0	–	0.005		NA	n	–	–	–	no
1-Methylnaphthalene	0	/	4	0	–	0.005		NA	c	–	–	–	no
2-Methylnaphthalene	0	/	4	0	–	0.005		3.30E+00	n	–	–	–	no
Naphthalene	0	/	4	0	–	0.005		1.50E-01	c	–	–	–	no
Phenanthrene	0	/	4	0	–	0.005		NA	n	–	–	–	no

Total Maximum / Screening Level Ratios	0.4	0.005
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	4.E-06	0.005

Target Organ Max/SL Ratios	
Kidney and Liver	0.005
Brain	NA
Nasal	NA
Eyes	NA

Table E.16-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 149 (SWMU 149)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
						Skin		NA	
						Lungs		NA	
						Gastrointestinal Tract and Forestomach		NA	
						Whole Body		NA	
						Blood		NA	
						Nervous System		NA	
						Dental		NA	
						Red Blood Cells		NA	
						Glands		NA	
						Fetus		NA	
						Immune System		NA	
						Development		NA	
						Reproduction		NA	
						Bone		NA	
						Not Available/ Not Reported		NA	

Notes:

– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1×10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.16.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	1	/	2	50	0.37	0.1		no	2.5	*R5*	0.1	no	HQ ≤ 1
Acrolein	0	/	2	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	2	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	2	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	2	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	2	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	2	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	2	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	2	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	2	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	2	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	2	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	2	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	2	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	2	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	2	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	2	0	–	0.0003		no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	2	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	2	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	2	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	2	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	2	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	2	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	2	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	2	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	2	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	2	0	–	0.01		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	2	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	2	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	2	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	2	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	2	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	2	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	2	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	2	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	2	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	2	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	2	0	–	0.005		no	9.92	*R5*	NA	no	ND

Table E.16.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,1,2,2-Tetrachloroethane	0	/	2	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	2	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	2	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	2	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	2	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	2	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	2	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	2	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	2	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	2	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	2	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	2	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	2	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	2	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	2	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	2	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	2	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	2	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	2	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	2	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	2	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	2	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	2	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	2	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	2	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	2	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	2	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	2	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	2	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	2	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	2	0	–	0.0003		no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	2	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	2	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	2	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	2	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	2	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	2	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	2	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	2	0	–	0.3		no	139	*R5*	NA	no	ND

Table E.16.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	2	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	2	0	–	0.0003		no	682	*R5*	NA	no	ND
Anthracene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	2	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	2	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	2	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	2	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	2	0	–	0.3		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	2	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	2	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	2	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	2	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	2	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pesticides													
Aldrin	0	/	2	0	–	0.0034	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	2	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	2	0	–	0.0034		no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	2	0	–	0.067		no	0.119	*R5*	NA	no	ND
Chlordane	0	/	2	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	2	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	2	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	2	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	2	0	–	0.0034		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	2	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	2	0	–	0.0034		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	2	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	2	0	–	0.0067	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	2	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	2	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	2	0	–	0.0034		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	2	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	2	0	–	0.0034		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-e	0	/	2	0	–	0.034	^	no	0.0199	*R5*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	2	0	–	14		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	2	0	–	14		no	10,000	*API*	NA	no	ND

Table E.16.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Polychlorinated Biphenyls													
Aroclor 1221	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1016	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1248	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	2	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	1	/	2	50	0.78	0.43		YES	18	*EcoSSL*	0.04	no	≤ BKGD
Barium	0	/	2	0	–	110		YES	330	*EcoSSL*	NA	no	ND
Cadmium	0	/	2	0	–	2.7	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	0	/	2	0	–	27	^	no	11	*EcoSSL*	NA	no	ND
Mercury	0	/	2	0	–	0.1		no	0.1	*R4*	NA	no	ND
Selenium	0	/	2	0	–	0.52		no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	2	0	–	5.5	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.17.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	9	0	–	-	–	0.1	-	0.1	–	0.05	–
Acrolein	0	-	6	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	9	0	–	-	–	0.01	-	0.1	–	0.035	–
Benzene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Bis(2-chloroethyl)ether	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Bis(2-chloroisopropyl)ether	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Bromobenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromodichloromethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Bromomethane	0	-	9	0	–	-	–	0.005	-	0.05	–	0.01	–
2-Butanone	0	-	9	0	–	-	–	0.05	-	0.1	–	0.0417	–
tert-Butyl alcohol	0	-	1	0	–	-	–	0.2	-	0.2	–	0.1	–
n-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
sec-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
tert-Butylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Carbon disulfide	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Carbon tetrachloride	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
CFC-11	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	9	0	–	-	–	0.01	-	0.02	–	0.00833	–
Chlorobenzene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Chlorobromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Chlorodibromomethane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Chloroethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	9	0	–	-	–	0.01	-	0.05	–	0.0117	–
Chloroform	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Chloromethane	0	-	9	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	5	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Chlorotoluene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
4-Chlorotoluene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Cymene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dibromoethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Dibromomethane	0	-	9	0	–	-	–	0.01	-	0.02	–	0.00833	–
1,2-Dichlorobenzene	0	-	9	0	–	-	–	0.01	-	0.33	–	0.103	–
1,4-Dichlorobenzene	0	-	9	0	–	-	–	0.01	-	0.33	–	0.103	–
1,4 Dichloro-2-butene	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–
trans-1,4-Dichlorobutene	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–

Table E.17.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
1,1-Dichloroethane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,2-Dichloroethane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,1-Dichloroethylene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
cis-1,2-Dichloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,2-Dichloroethene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Dichloromethane	0	-	8	0	–	-	–	0.005	-	0.05	–	0.0109	–
1,2-Dichloropropane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,3-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2,2-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,3-Dichloropropene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
trans-1,3-Dichloropropene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Ethanol	0	-	6	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Iodomethane	0	-	9	0	–	-	–	0.02	-	0.05	–	0.015	–
Isopropyl alcohol	0	-	1	0	–	-	–	0.2	-	0.2	–	0.1	–
Isopropylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
m-Dichlorobenzene	0	-	9	0	–	-	–	0.01	-	0.33	–	0.103	–
Methyl n-butyl ketone	0	-	9	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
4-Methyl-2-pentanone (MIBK)	0	-	9	0	–	-	–	0.05	-	0.05	–	0.025	–
Methyl tert-butyl ether (MTBE)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Nitrobenzene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
n-Propylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Styrene (monomer)	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Tetrachloroethene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,1,1,2-Tetrachloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2,2-Tetrachloroethane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,1,1-Trichloroethane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,1,2-Trichloroethane	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
1,2,3-Trichlorobenzene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	9	0	–	-	–	0.01	-	0.02	–	0.00833	–
1,2,4-Trichlorobenzene	0	-	9	0	–	-	–	0.05	-	0.33	–	0.11	–
1,2,4-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3,5-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Trichloroethylene	0	-	9	0	–	-	–	0.005	-	0.01	–	0.00333	–
Vinyl acetate	0	-	6	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.17.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Vinyl chloride	0 - 9	0	–	–	0.01	0.01	–	0.005	–
m,p-Xylene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
o-Xylene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Xylenes	0 - 6	0	–	–	0.005	0.005	–	0.0025	–
Semi Volatile Organic Compounds									
Benzidine	0 - 6	0	–	–	1.7	1.7	–	0.85	–
Benzoic acid	0 - 6	0	–	–	1.7	2	–	0.975	–
Benzyl butyl phthalate	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Bis(2-chloroethoxy)methane	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Bis(2-ethylhexyl)phthalate	0 - 6	0	–	–	0.3	0.33	–	0.153	–
4-Bromophenyl phenyl ether	0 - 6	0	–	–	0.3	0.33	–	0.153	–
2-Butoxy ethanol	0 - 3	0	–	–	0.25	0.25	–	0.125	–
4-Chloro-3-methylphenol	0 - 6	0	–	–	0.66	0.7	–	0.347	–
4-Chlorophenyl phenyl ether	0 - 6	0	–	–	0.3	0.33	–	0.153	–
3,3'-Dichlorobenzidine	0 - 6	0	–	–	0.66	0.7	–	0.347	–
2,4-Dichlorophenol	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Diethyl phthalate	0 - 6	0	–	–	0.3	0.33	–	0.153	–
2,4-Dimethylphenol	0 - 6	0	–	–	0.3	0.33	–	0.153	–
2,4-Dinitrophenol	0 - 6	0	–	–	1.7	2	–	0.975	–
2,4-Dinitrotoluene	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Dimethyl phthalate	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Di-n-butyl phthalate	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Di-n-octyl phthalate	0 - 6	0	–	–	0.3	0.33	–	0.153	–
1,4-Dioxane	0 - 1	0	–	–	0.5	0.5	–	0.25	–
Hexachloro-1,3-butadiene	0 - 9	0	–	–	0.05	0.33	–	0.11	–
Hexachlorobenzene	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Hexachlorocyclopentadiene	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Hexachloroethane	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Methanamine, n-methyl-n-nitroso	0 - 6	0	–	–	0.33	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0 - 6	0	–	–	1.7	2	–	0.975	–
2-Nitrophenol	0 - 6	0	–	–	0.3	0.33	–	0.153	–
4-Nitrophenol	0 - 6	0	–	–	1.7	2	–	0.975	–
n-Nitrosodi-n-propylamine	0 - 6	0	–	–	0.3	0.33	–	0.153	–
n-Nitrosodiphenylamine	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Pentachlorophenol	0 - 6	0	–	–	1.7	2	–	0.975	–
Phenol	0 - 6	0	–	–	0.3	0.33	–	0.153	–
Tribromomethane	0 - 3	0	–	–	0.01	0.01	–	0.005	–
2,4,6-Trichlorophenol	0 - 6	0	–	–	0.3	0.33	–	0.153	–

Table E.17.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Acenaphthylene	0	-	5	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Benzo(a)anthracene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Benzo(a)pyrene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Benzo(b)fluoranthene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Benzo(g,h,i)perylene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Benzo(k)fluoranthene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
1,2-Benzphenanthracene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
2-Chloronaphthalene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Dibenz(a,h)anthracene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Fluoranthene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Fluorene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Indeno(1,2,3-cd)pyrene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Naphthalene	0	-	9	0	–	-	–	0.05	-	0.33	–	0.11	–
Phenanthrene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Pyrene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Explosives													
2,6-Dinitrotoluene	0	-	6	0	–	-	–	0.3	-	0.33	–	0.153	–
Inorganics													
Arsenic	5	-	9	55.6	0.54	-	1.5	0.47	-	2	150S2(2/16/1992),150S3(2/16/1992)	1.02	1.424
Barium	3	-	9	33.3	63.1	-	75.2	85	-	110	HLSF-SB-007(10/17/2006)	55	–
Cadmium	0	-	9	0	–	-	–	0.1	-	2.6	–	0.806	–
Chromium	3	-	3	100	7.21	-	9.06	–	-	–	HLSF-SB-008(10/17/2006)	8.36	–
Chromium (Hexavalent)	0	-	3	0	–	-	–	0.4	-	5	–	1.73	–
Lead	4	-	9	44.4	13.3	-	58	23	-	26	150S1(2/16/1992)	18.4	–
Mercury	3	-	9	33.3	0.11	-	0.3	0.04	-	0.09	150S1(2/16/1992)	0.0789	–
Nitrate + Nitrite	2	-	3	66.7	1.26	-	15.4	1	-	1	HLSF-SB-007(10/17/2006)	5.72	–
Selenium	0	-	9	0	–	-	–	0.46	-	1	–	0.333	–
Silver	4	-	9	44.4	6.1	-	7.6	0.05	-	5.3	150S2(2/16/1992),150S3(2/16/1992)	3.73	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.

Table E.17.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			

For constituents analyzed in two methods, the result of the more precise method was used.
[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.17.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Volatile Organic Compounds									
Acetone	0 - 11	0	–	–	0.1	0.1	–	0.05	–
Acrolein	0 - 8	0	–	–	0.2	0.2	–	0.1	–
Acrylonitrile	0 - 11	0	–	–	0.01	0.1	–	0.0377	–
Benzene	0 - 11	0	–	–	0.005	0.01	–	0.00318	–
Bis(2-chloroethyl)ether	0 - 8	0	–	–	0.3	0.33	–	0.152	–
Bis(2-chloroisopropyl)ether	0 - 8	0	–	–	0.3	0.33	–	0.152	–
Bromobenzene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Bromodichloromethane	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Bromomethane	0 - 11	0	–	–	0.005	0.05	–	0.00864	–
2-Butanone	0 - 11	0	–	–	0.05	0.1	–	0.0432	–
tert-Butyl alcohol	0 - 1	0	–	–	0.2	0.2	–	0.1	–
n-Butylbenzene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
sec-Butylbenzene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
tert-Butylbenzene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Carbon disulfide	0 - 11	0	–	–	0.005	0.01	–	0.00318	–
Carbon tetrachloride	0 - 11	0	–	–	0.005	0.01	–	0.00318	–
CFC-11	0 - 11	0	–	–	0.01	0.01	–	0.005	–
CFC-12	0 - 11	0	–	–	0.01	0.02	–	0.00864	–
Chlorobenzene	0 - 11	0	–	–	0.005	0.01	–	0.00318	–
Chlorobromomethane	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Chlorodibromomethane	0 - 11	0	–	–	0.005	0.01	–	0.00318	–
Chloroethane	0 - 11	0	–	–	0.01	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0 - 11	0	–	–	0.01	0.05	–	0.0105	–
Chloroform	0 - 11	0	–	–	0.005	0.01	–	0.00318	–
Chloromethane	0 - 11	0	–	–	0.01	0.01	–	0.005	–
2-Chlorophenol	0 - 7	0	–	–	0.33	0.33	–	0.165	–
2-Chlorotoluene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
4-Chlorotoluene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Cymene	0 - 3	0	–	–	0.01	0.01	–	0.005	–
1,2-Dibromo-3-chloropropane (DBCP)	0 - 3	0	–	–	0.05	0.05	–	0.025	–
1,2-Dibromoethane	0 - 3	0	–	–	0.01	0.01	–	0.005	–
Dibromomethane	0 - 11	0	–	–	0.01	0.02	–	0.00864	–
1,2-Dichlorobenzene	0 - 11	0	–	–	0.01	0.33	–	0.112	–
1,4-Dichlorobenzene	0 - 11	0	–	–	0.01	0.33	–	0.112	–
1,4 Dichloro-2-butene	0 - 8	0	–	–	0.02	0.02	–	0.01	–
trans-1,4-Dichlorobutene	0 - 3	0	–	–	0.1	0.1	–	0.05	–

Table E.17.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
1,1-Dichloroethane	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,2-Dichloroethane	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,1-Dichloroethylene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
cis-1,2-Dichloroethene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
trans-1,2-Dichloroethene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
Dichloromethane	0	-	10	0	–	-	–	0.005	-	0.05	–	0.00925	–
1,2-Dichloropropane	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,3-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2,2-Dichloropropane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloropropene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
cis-1,3-Dichloropropene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
trans-1,3-Dichloropropene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
Ethanol	0	-	8	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	8	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
Iodomethane	0	-	11	0	–	-	–	0.02	-	0.05	–	0.0141	–
Isopropyl alcohol	0	-	1	0	–	-	–	0.2	-	0.2	–	0.1	–
Isopropylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
m-Dichlorobenzene	0	-	11	0	–	-	–	0.01	-	0.33	–	0.112	–
Methyl n-butyl ketone	0	-	11	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
4-Methyl-2-pentanone (MIBK)	0	-	11	0	–	-	–	0.05	-	0.05	–	0.025	–
Methyl tert-butyl ether (MTBE)	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Nitrobenzene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
n-Propylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Styrene (monomer)	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
Tetrachloroethene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,1,1,2-Tetrachloroethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1,2,2-Tetrachloroethane	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,1,1-Trichloroethane	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,1,2-Trichloroethane	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
1,2,3-Trichlorobenzene	0	-	3	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	11	0	–	-	–	0.01	-	0.02	–	0.00864	–
1,2,4-Trichlorobenzene	0	-	11	0	–	-	–	0.05	-	0.33	–	0.117	–
1,2,4-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
1,3,5-Trimethylbenzene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Trichloroethylene	0	-	11	0	–	-	–	0.005	-	0.01	–	0.00318	–
Vinyl acetate	0	-	8	0	–	-	–	0.01	-	0.01	–	0.005	–

Table E.17.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Vinyl chloride	0	-	11	0	–	-	–	0.01	-	0.01	–	0.005	–
m,p-Xylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
o-Xylene	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	8	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	8	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–
Benzyl butyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Bis(2-chloroethoxy)methane	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Bis(2-ethylhexyl)phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
4-Bromophenyl phenyl ether	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
2-Butoxy ethanol	0	-	3	0	–	-	–	0.25	-	0.25	–	0.125	–
4-Chloro-3-methylphenol	0	-	8	0	–	-	–	0.66	-	0.7	–	0.348	–
4-Chlorophenyl phenyl ether	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
3,3'-Dichlorobenzidine	0	-	8	0	–	-	–	0.66	-	0.7	–	0.348	–
2,4-Dichlorophenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Diethyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
2,4-Dimethylphenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
2,4-Dinitrophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–
2,4-Dinitrotoluene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Dimethyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Di-n-butyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Di-n-octyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
1,4-Dioxane	0	-	1	0	–	-	–	0.5	-	0.5	–	0.25	–
Hexachloro-1,3-butadiene	0	-	11	0	–	-	–	0.05	-	0.33	–	0.117	–
Hexachlorobenzene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Hexachlorocyclopentadiene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Hexachloroethane	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Methanamine, n-methyl-n-nitroso	0	-	8	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–
2-Nitrophenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
4-Nitrophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–
n-Nitrosodi-n-propylamine	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
n-Nitrosodiphenylamine	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Pentachlorophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–
Phenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Tribromomethane	0	-	3	0	–	-	–	0.01	-	0.01	–	0.005	–
2,4,6-Trichlorophenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–

Table E.17.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Acenaphthylene	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Benzo(a)anthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Benzo(a)pyrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Benzo(b)fluoranthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Benzo(g,h,i)perylene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Benzo(k)fluoranthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
1,2-Benzphenanthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
2-Chloronaphthalene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Dibenz(a,h)anthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Fluoranthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Fluorene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Indeno(1,2,3-cd)pyrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Naphthalene	0	-	11	0	–	-	–	0.05	-	0.33	–	0.117	–
Phenanthrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Pyrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Explosives													
2,6-Dinitrotoluene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–
Inorganics													
Arsenic	7	-	11	63.6	0.54	-	1.9	0.47	-	2	150BG1(2/16/1992)	1.1	1.482
Barium	4	-	11	36.4	63.1	-	170	85	-	110	150BG1(2/16/1992)	65	–
Cadmium	0	-	11	0	–	-	–	0.1	-	2.6	–	0.886	–
Chromium	3	-	3	100	7.21	-	9.06	–	-	–	HLSF-SB-008(10/17/2006)	8.36	–
Chromium (Hexavalent)	0	-	3	0	–	-	–	0.4	-	5	–	1.73	–
Lead	4	-	11	36.4	13.3	-	58	23	-	26	150S1(2/16/1992)	17.3	–
Mercury	4	-	11	36.4	0.11	-	0.3	0.04	-	0.09	150S1(2/16/1992)	0.0791	–
Nitrate + Nitrite	2	-	3	66.7	1.26	-	15.4	1	-	1	HLSF-SB-007(10/17/2006)	5.72	–
Selenium	0	-	11	0	–	-	–	0.46	-	1	–	0.316	–
Silver	4	-	11	36.4	6.1	-	7.6	0.05	-	5.3	150S2(2/16/1992),150S3(2/16/1992)	3.52	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.

Table E.17.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			

For constituents analyzed in two methods, the result of the more precise method was used.
[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.17.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	0	-	26	0	–	-	–	0.1	-	0.1	–	0.05	–	Y
Acrolein	0	-	8	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
Acrylonitrile	0	-	26	0	–	-	–	0.01	-	0.1	–	0.0188	–	Y
Benzene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Bis(2-chloroethyl)ether	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Bis(2-chloroisopropyl)ether	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Bromobenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromodichloromethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Bromomethane	0	-	26	0	–	-	–	0.005	-	0.05	–	0.0181	–	Y
2-Butanone	0	-	26	0	–	-	–	0.05	-	0.1	–	0.0327	–	Y
tert-Butyl alcohol	0	-	8	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
n-Butylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
sec-Butylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
tert-Butylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Carbon disulfide	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Carbon tetrachloride	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
CFC-11	0	-	26	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
CFC-12	0	-	26	0	–	-	–	0.01	-	0.02	–	0.00654	–	Y
Chlorobenzene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Chlorobromomethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Chlorodibromomethane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	N
Chloroethane	0	-	26	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chloroethyl vinyl ether	0	-	26	0	–	-	–	0.01	-	0.05	–	0.0188	–	Y
Chloroform	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Chloromethane	0	-	26	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2-Chlorophenol	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–	Y
2-Chlorotoluene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
4-Chlorotoluene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Cymene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	N
1,2-Dibromoethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Dibromomethane	0	-	26	0	–	-	–	0.01	-	0.02	–	0.00654	–	Y
1,2-Dichlorobenzene	0	-	26	0	–	-	–	0.01	-	0.33	–	0.0502	–	Y
1,4-Dichlorobenzene	0	-	26	0	–	-	–	0.01	-	0.33	–	0.0502	–	Y
1,4 Dichloro-2-butene	0	-	8	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
trans-1,4-Dichlorobutene	0	-	18	0	–	-	–	0.1	-	0.1	–	0.05	–	Y

Table E.17.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
1,1-Dichloroethane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,2-Dichloroethane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,1-Dichloroethylene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
cis-1,2-Dichloroethene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
trans-1,2-Dichloroethene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Dichloromethane	0	-	25	0	–	-	–	0.005	-	0.05	–	0.0187	–	Y
1,2-Dichloropropane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,3-Dichloropropane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
2,2-Dichloropropane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloropropene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
cis-1,3-Dichloropropene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
trans-1,3-Dichloropropene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Ethanol	0	-	8	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	8	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
Ethylbenzene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Iodomethane	0	-	26	0	–	-	–	0.02	-	0.05	–	0.0204	–	Y
Isopropyl alcohol	0	-	8	0	–	-	–	0.2	-	0.2	–	0.1	–	N
Isopropylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m-Dichlorobenzene	0	-	26	0	–	-	–	0.01	-	0.33	–	0.0502	–	Y
Methyl n-butyl ketone	0	-	26	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methylbenzene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	26	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Nitrobenzene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
n-Propylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Styrene (monomer)	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Tetrachloroethene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,1,1,2-Tetrachloroethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1,2,2-Tetrachloroethane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,1,1-Trichloroethane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,1,2-Trichloroethane	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
1,2,3-Trichlorobenzene	0	-	18	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
1,2,3-Trichloropropane	0	-	26	0	–	-	–	0.01	-	0.02	–	0.00654	–	Y
1,2,4-Trichlorobenzene	0	-	26	0	–	-	–	0.05	-	0.33	–	0.064	–	Y
1,2,4-Trimethylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,3,5-Trimethylbenzene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Trichloroethylene	0	-	26	0	–	-	–	0.005	-	0.01	–	0.00423	–	Y
Vinyl acetate	0	-	8	0	–	-	–	0.01	-	0.01	–	0.005	–	Y

Table E.17.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Vinyl chloride	0	-	26	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
m,p-Xylene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
o-Xylene	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	8	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	8	0	–	-	–	1.7	-	1.7	–	0.85	–	N
Benzoic acid	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–	N
Benzyl butyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Bis(2-chloroethoxy)methane	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Bis(2-ethylhexyl)phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
4-Bromophenyl phenyl ether	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
2-Butoxy ethanol	0	-	18	0	–	-	–	0.25	-	0.25	–	0.125	–	N
4-Chloro-3-methylphenol	0	-	8	0	–	-	–	0.66	-	0.7	–	0.348	–	N
4-Chlorophenyl phenyl ether	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
3,3'-Dichlorobenzidine	0	-	8	0	–	-	–	0.66	-	0.7	–	0.348	–	N
2,4-Dichlorophenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Diethyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
2,4-Dimethylphenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
2,4-Dinitrophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–	N
2,4-Dinitrotoluene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Dimethyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Di-n-butyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Di-n-octyl phthalate	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
1,4-Dioxane	0	-	8	0	–	-	–	0.5	-	0.5	–	0.25	–	N
Hexachloro-1,3-butadiene	0	-	26	0	–	-	–	0.05	-	0.33	–	0.064	–	N
Hexachlorobenzene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Hexachlorocyclopentadiene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Hexachloroethane	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Methanamine, n-methyl-n-nitroso	0	-	8	0	–	-	–	0.33	-	0.33	–	0.165	–	N
2-Methyl-4,6-dinitrophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–	N
2-Nitrophenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
4-Nitrophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–	N
n-Nitrosodi-n-propylamine	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
n-Nitrosodiphenylamine	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Pentachlorophenol	0	-	8	0	–	-	–	1.7	-	2	–	0.981	–	N
Phenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Tribromomethane	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	N
2,4,6-Trichlorophenol	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N

Table E.17.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Acenaphthylene	0	-	7	0	–	-	–	0.33	-	0.33	–	0.165	–	Y
Anthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Benzo(a)anthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Benzo(a)pyrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Benzo(b)fluoranthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Benzo(g,h,i)perylene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Benzo(k)fluoranthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
1,2-Benzphenanthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
2-Chloronaphthalene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Dibenz(a,h)anthracene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Fluoranthene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Fluorene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Indeno(1,2,3-cd)pyrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Naphthalene	0	-	26	0	–	-	–	0.05	-	0.33	–	0.064	–	Y
Phenanthrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	Y
Pyrene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Explosives														
2,6-Dinitrotoluene	0	-	8	0	–	-	–	0.3	-	0.33	–	0.152	–	N
Inorganics														
Arsenic	10	-	26	38.5	0.54	-	4.46	0.47	-	2	HLSF-SB-008(10/18/2006)	1.33	1.823	N
Barium	19	-	26	73.1	12.5	-	175	85	-	110	HLSF-SB-009(10/18/2006)	54.6	67.81	N
Cadmium	0	-	26	0	–	-	–	0.1	-	2.6	–	0.404	–	N
Chromium	18	-	18	100	2.36	-	16.9	–	-	–	HLSF-SB-007(10/17/2006)	7.72	9.33	N
Chromium (Hexavalent)	0	-	18	0	–	-	–	0.4	-	5	–	1.48	–	N
Lead	19	-	26	73.1	2.15	-	58	23	-	26	150S1(2/16/1992)	15.9	19.96	N
Mercury	4	-	26	15.4	0.11	-	0.3	0.04	-	0.09	150S1(2/16/1992)	0.045	–	N
Nitrate + Nitrite	16	-	18	88.9	0.579	-	15.4	0.5	-	1	HLSF-SB-007(10/17/2006)	3.82	5.608	N
Selenium	0	-	26	0	–	-	–	0.46	-	1	–	0.422	–	N
Silver	4	-	26	15.4	6.1	-	7.6	0.05	-	5.3	150S2(2/16/1992),150S3(2/16/1992)	1.5	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.

Table E.17.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)				

For constituents analyzed in two methods, the result of the more precise method was used.
[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.17-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Volatile Organic Compounds																	
Acetone	0 / 9	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0 / 6	0	–	0.2	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0 / 9	0	–	0.1	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0 / 9	0	–	0.01	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0 / 6	0	–	0.33	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0 / 6	0	–	0.33	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromobenzene	0 / 3	0	–	0.01	–	3.00E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no
Bromodichloromethane	0 / 3	0	–	0.01	–	5.25E+00	c	2.92E+01	c	–	–	–	–	–	–	no	no
Bromomethane	0 / 9	0	–	0.05	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0 / 9	0	–	0.1	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
tert-Butyl alcohol	0 / 1	0	–	0.2	–	2.35E+04	n	3.41E+05	n	–	–	–	–	–	–	no	no
n-Butylbenzene	0 / 3	0	–	0.01	–	4.45E+03	n	3.38E+04	n	–	–	–	–	–	–	no	no
sec-Butylbenzene	0 / 3	0	–	0.01	–	2.55E+03	n	1.53E+04	n	–	–	–	–	–	–	no	no
tert-Butylbenzene	0 / 3	0	–	0.01	–	2.52E+03	n	1.50E+04	n	–	–	–	–	–	–	no	no
Carbon disulfide	0 / 9	0	–	0.01	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0 / 9	0	–	0.01	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0 / 9	0	–	0.01	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0 / 9	0	–	0.02	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0 / 9	0	–	0.01	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorobromomethane	0 / 3	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0 / 9	0	–	0.01	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0 / 9	0	–	0.01	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0 / 9	0	–	0.05	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0 / 9	0	–	0.01	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0 / 9	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0 / 5	0	–	0.33	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
2-Chlorotoluene	0 / 3	0	–	0.01	–	1.56E+03	n	2.27E+04	n	–	–	–	–	–	–	no	no
4-Chlorotoluene	0 / 3	0	–	0.01	–	5.50E+03	n	7.20E+04	n	–	–	–	–	–	–	no	no
Cymene	0 / 3	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
1,2-Dibromo-3-chloropropane (DBCP)	0 / 3	0	–	0.05	–	5.40E-02	c	6.90E-01	c	–	–	–	–	–	–	no	no
1,2-Dibromoethane	0 / 3	0	–	0.01	–	5.74E-01	c	3.14E+00	c	–	–	–	–	–	–	no	no
Dibromomethane	0 / 9	0	–	0.02	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0 / 9	0	–	0.33	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0 / 9	0	–	0.33	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0 / 6	0	–	0.02	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
trans-1,4-Dichlorobutene	0 / 3	0	–	0.1 ^	–	6.90E-02	c	3.50E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0 / 9	0	–	0.01	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0 / 9	0	–	0.01	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0 / 9	0	–	0.01	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
cis-1,2-Dichloroethene	0 / 3	0	–	0.01	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0 / 9	0	–	0.01	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0 / 8	0	–	0.05	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0 / 9	0	–	0.01	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
1,3-Dichloropropane	0 / 3	0	–	0.01	–	1.60E+03	n	2.00E+04	n	–	–	–	–	–	–	no	no
2,2-Dichloropropane	0 / 3	0	–	0.01	–	8.35E+00	n	3.90E+01	n	–	–	–	–	–	–	no	no
1,1-Dichloropropene	0 / 3	0	–	0.01	–	6.40E+01	c	3.18E+02	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0 / 9	0	–	0.01	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0 / 9	0	–	0.01	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethanol	0 / 6	0	–	1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Ethyl methacrylate	0 / 6	0	–	0.02	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0 / 9	0	–	0.01	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0 / 9	0	–	0.05	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
Isopropyl alcohol	0 / 1	0	–	0.2	–	9.90E+09	n	4.20E+10	n	–	–	–	–	–	–	no	no
Isopropylbenzene	0 / 3	0	–	0.01	–	3.21E+03	n	1.49E+04	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0 / 9	0	–	0.33	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0 / 9	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no

Table E.17-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Methylbenzene	0 / 9	0	–	0.01	–	5.57E+03 n	5.79E+04 n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0 / 9	0	–	0.05	–	5.30E+03 n	5.30E+04 n	–	–	–	–	–	–	no	no
Methyl tert-butyl ether (MTBE)	0 / 3	0	–	0.01	–	8.62E+02 c	4.69E+03 c	–	–	–	–	–	–	no	no
Nitrobenzene	0 / 6	0	–	0.33	–	4.94E+01 c	2.77E+02 c	–	–	–	–	–	–	no	no
n-Propylbenzene	0 / 3	0	–	0.01	–	3.40E+03 n	2.10E+04 n	–	–	–	–	–	–	no	no
Styrene (monomer)	0 / 9	0	–	0.01	–	8.97E+03 n	5.12E+04 n	–	–	–	–	–	–	no	no
Tetrachloroethene	0 / 9	0	–	0.01	–	6.99E+00 c	3.64E+01 c	–	–	–	–	–	–	no	no
1,1,1,2-Tetrachloroethane	0 / 3	0	–	0.01	–	2.92E+01 c	1.61E+02 c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0 / 9	0	–	0.01	–	7.98E+00 c	4.33E+01 c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0 / 9	0	–	0.01	–	2.18E+04 n	7.71E+04 n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0 / 9	0	–	0.01	–	1.72E+01 c	9.43E+01 c	–	–	–	–	–	–	no	no
1,2,3-Trichlorobenzene	0 / 3	0	–	0.05	–	4.90E+01 n	4.90E+02 n	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0 / 9	0	–	0.02	–	9.15E-01 c	4.54E+00 c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0 / 9	0	–	0.33	–	1.43E+02 n	5.25E+02 n	–	–	–	–	–	–	no	no
1,2,4-Trimethylbenzene	0 / 3	0	–	0.01	–	6.20E+01 n	2.60E+02 n	–	–	–	–	–	–	no	no
1,3,5-Trimethylbenzene	0 / 3	0	–	0.01	–	7.80E+02 n	1.00E+04 n	–	–	–	–	–	–	no	no
Trichloroethylene	0 / 9	0	–	0.01	–	4.57E+01 c	2.53E+02 c	–	–	–	–	–	–	no	no
Vinyl acetate	0 / 6	0	–	0.01	–	3.65E+03 n	1.19E+04 n	–	–	–	–	–	–	no	no
Vinyl chloride	0 / 9	0	–	0.01	–	8.65E-01 c	2.59E+01 c	–	–	–	–	–	–	no	no
m,p-Xylene	0 / 3	0	–	0.01	–	8.29E+03 n	2.72E+04 n	–	–	–	–	–	–	no	no
o-Xylene	0 / 3	0	–	0.01	–	9.55E+03 n	3.15E+04 n	–	–	–	–	–	–	no	no
Xylenes	0 / 6	0	–	0.005	–	1.09E+03 n	3.61E+03 n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds															
Benzidine	0 / 6	0	–	1.7 ^	–	2.11E-02 c	8.33E-02 c	–	–	–	–	–	–	no	no
Benzoic acid	0 / 6	0	–	2	–	2.40E+05 n	2.50E+06 n	–	–	–	–	–	–	no	no
Benzyl butyl phthalate	0 / 6	0	–	0.33	–	2.60E+03 c	9.10E+03 c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0 / 6	0	–	0.33	–	1.80E+02 n	1.80E+03 n	–	–	–	–	–	–	no	no
Bis(2-ethylhexyl)phthalate	0 / 6	0	–	0.33	–	3.47E+02 c	1.37E+03 c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0 / 6	0	–	0.33	–	NA n	NA n	–	–	–	–	–	–	no	no
2-Butoxy ethanol	0 / 3	0	–	0.25	–	3.10E+04 n	3.10E+05 n	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0 / 6	0	–	0.7	–	6.10E+03 n	6.20E+04 n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0 / 6	0	–	0.33	–	NA n	NA n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0 / 6	0	–	0.7	–	1.10E+01 c	3.80E+01 c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0 / 6	0	–	0.33	–	1.83E+02 n	2.05E+03 n	–	–	–	–	–	–	no	no
Diethyl phthalate	0 / 6	0	–	0.33	–	4.89E+04 n	5.47E+05 n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0 / 6	0	–	0.33	–	1.22E+03 n	1.37E+04 n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0 / 6	0	–	2	–	1.22E+02 n	1.37E+03 n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0 / 6	0	–	0.33	–	1.57E+01 c	1.03E+02 c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0 / 6	0	–	0.33	–	6.11E+05 n	6.84E+06 n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0 / 6	0	–	0.33	–	6.11E+03 n	6.84E+04 n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0 / 6	0	–	0.33	–	2.44E+03 n	2.74E+04 n	–	–	–	–	–	–	no	no
1,4-Dioxane	0 / 1	0	–	0.5	–	4.42E+02 c	1.74E+03 c	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0 / 9	0	–	0.33	–	6.11E+01 c	2.46E+02 c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0 / 6	0	–	0.33	–	3.04E+00 c	1.20E+01 c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0 / 6	0	–	0.33	–	3.67E+02 n	4.10E+03 n	–	–	–	–	–	–	no	no
Hexachloroethane	0 / 6	0	–	0.33	–	6.11E+01 n	6.84E+02 n	–	–	–	–	–	–	no	no
Methanamine, n-methyl-n-nitroso	0 / 6	0	–	0.33 ^	–	9.54E-02 c	3.76E-01 c	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0 / 6	0	–	2	–	6.10E+00 n	6.20E+01 n	–	–	–	–	–	–	no	no
2-Nitrophenol	0 / 6	0	–	0.33	–	NA n	NA n	–	–	–	–	–	–	no	no
4-Nitrophenol	0 / 6	0	–	2	–	NA n	NA n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0 / 6	0	–	0.33	–	6.90E-01 c	2.50E+00 c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0 / 6	0	–	0.33	–	9.93E+02 c	3.91E+03 c	–	–	–	–	–	–	no	no
Pentachlorophenol	0 / 6	0	–	2	–	2.98E+01 c	1.00E+02 c	–	–	–	–	–	–	no	no
Phenol	0 / 6	0	–	0.33	–	1.83E+04 n	2.05E+05 n	–	–	–	–	–	–	no	no
Tribromomethane	0 / 3	0	–	0.01	–	6.10E+02 c	2.20E+03 c	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0 / 6	0	–	0.33	–	6.11E+01 n	6.84E+02 n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0 / 6	0	–	0.33	–	5.12E+03 c	2.02E+04 c	–	–	–	–	–	–	no	no

Table E.17-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	0 / 6	0	–	0.33	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0 / 5	0	–	0.33	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0 / 6	0	–	0.33	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0 / 6	0	–	0.33	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0 / 6	0	–	0.33	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0 / 6	0	–	0.33	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0 / 6	0	–	0.33	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0 / 6	0	–	0.33	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0 / 6	0	–	0.33	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0 / 6	0	–	0.33	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0 / 6	0	–	0.33	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Fluoranthene	0 / 6	0	–	0.33	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0 / 6	0	–	0.33	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0 / 6	0	–	0.33	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Naphthalene	0 / 9	0	–	0.33	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Phenanthrene	0 / 6	0	–	0.33	–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–	no	no
Pyrene	0 / 6	0	–	0.33	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Explosives																	
2,6-Dinitrotoluene	0 / 6	0	–	0.33	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																	
Arsenic	5 / 9	55.6	1.5	2	YES	3.90E+00	c	1.77E+01	c	no	no	3.85E-01	–	8.48E-02	–	no	no
Barium	3 / 9	33.3	75.2	110	YES	1.56E+04	n	2.24E+05	n	no	no	–	4.82E-03	–	3.36E-04	no	no
Cadmium	0 / 9	0	–	2.6	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Chromium	3 / 3	100	9.06	–	YES	2.19E+02	n	2.92E+03	n	no	no	–	4.13E-02	–	3.10E-03	no	no
Chromium (Hexavalent)	0 / 3	0	–	5	no	2.19E+02	n	2.92E+03	n	–	–	–	–	–	–	no	no
Lead	4 / 9	44.4	58	26	no	4.00E+02	IEUBK	8.00E+02	IEUBK	no	no	–	–	–	–	no	no
Mercury	3 / 9	33.3	0.3	0.09	no	7.71E+00	n	4.99E+01	n	no	no	–	3.89E-02	–	6.01E-03	no	no
Nitrate + Nitrite	2 / 3	66.7	15.4 !	1	–	NA	n	NA	n	NA	NA	–	–	–	–	no	no
Selenium	0 / 9	0	–	1	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	4 / 9	44.4	7.6	5.3	no	3.91E+02	n	5.68E+03	n	no	no	–	1.94E-02	–	1.34E-03	no	no
Total Maximum / Screening Level Ratios												0.4	0.1	0.08	0.01		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)												4.E-06	0.1	8.E-07	0.01		

Target Organ Max/SL Ratios		
Kidney and Liver	0.005	0.0003
Brain	NA	NA
Nasal	NA	NA
Eyes	NA	NA
Skin	0.02	0.001
Lungs	0.04	0.003
Gastrointestinal Tract and Forestomach	NA	NA
Whole Body	NA	NA
Blood	NA	NA
Nervous System	NA	NA
Dental	NA	NA
Red Blood Cells	NA	NA
Glands	NA	NA
Fetus	0.005	0.0003
Immune System	NA	NA
Development	NA	NA
Reproduction	NA	NA
Bone	NA	NA
Not Available/ Not Reported	0.04	0.006

Table E.17-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD)		Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c]		Is Maximum > Screening Level?		Residential Scenario		Industrial Scenario		Constituent of Potential Concern (COPC)? [d]	
	number of detects / number of samples	FOD %				Residential Scenario (mg/kg)	Industrial Scenario (mg/kg)	Residential Scenario	Industrial Scenario	Max / SL (cancer)	Max / SL (noncancer)	Max / SL (cancer)	Max / SL (noncancer)	Residential	Industrial

Notes:

– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.17-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	0	/	11	0	–	0.1	–	2.63E+05	n	–	–	–	no
Acrolein	0	/	8	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	11	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	11	0	–	0.01	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	8	0	–	0.33	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	8	0	–	0.33	–	3.10E+03	c	–	–	–	no
Bromobenzene	0	/	3	0	–	0.01	–	1.40E+03	n	–	–	–	no
Bromodichloromethane	0	/	3	0	–	0.01	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/	11	0	–	0.05	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	11	0	–	0.1	–	1.48E+05	n	–	–	–	no
tert-Butyl alcohol	0	/	1	0	–	0.2	–	9.29E+04	n	–	–	–	no
n-Butylbenzene	0	/	3	0	–	0.01	–	1.80E+04	n	–	–	–	no
sec-Butylbenzene	0	/	3	0	–	0.01	–	1.05E+04	n	–	–	–	no
tert-Butylbenzene	0	/	3	0	–	0.01	–	1.04E+04	n	–	–	–	no
Carbon disulfide	0	/	11	0	–	0.01	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	11	0	–	0.01	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	11	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	11	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	11	0	–	0.01	–	1.58E+03	n	–	–	–	no
Chlorobromomethane	0	/	3	0	–	0.01	–	NA	n	–	–	–	no
Chlorodibromomethane	0	/	11	0	–	0.01	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	11	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	11	0	–	0.05	–	NA	n	–	–	–	no
Chloroform	0	/	11	0	–	0.01	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	11	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	7	0	–	0.33	–	1.55E+03	n	–	–	–	no
2-Chlorotoluene	0	/	3	0	–	0.01	–	6.19E+03	n	–	–	–	no
4-Chlorotoluene	0	/	3	0	–	0.01	–	2.17E+04	n	–	–	–	no
Cymene	0	/	3	0	–	0.01	–	NA	n	–	–	–	no
1,2-Dibromo-3-chloropropane (DBCP)	0	/	3	0	–	0.05	–	5.99E+01	n	–	–	–	no
1,2-Dibromoethane	0	/	3	0	–	0.01	–	4.86E+01	c	–	–	–	no
Dibromomethane	0	/	11	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	11	0	–	0.33	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	11	0	–	0.33	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	8	0	–	0.02	–	5.80E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	3	0	–	0.1	–	9.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	11	0	–	0.01	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	11	0	–	0.01	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	11	0	–	0.01	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	3	0	–	0.01	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/	11	0	–	0.01	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	10	0	–	0.05	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	11	0	–	0.01	–	1.17E+02	n	–	–	–	no
1,3-Dichloropropane	0	/	3	0	–	0.01	–	6.19E+03	n	–	–	–	no
2,2-Dichloropropane	0	/	3	0	–	0.01	–	3.51E+01	n	–	–	–	no
1,1-Dichloropropene	0	/	3	0	–	0.01	–	2.17E+03	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	11	0	–	0.01	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	11	0	–	0.01	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	8	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	8	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	11	0	–	0.01	–	6.63E+03	c	–	–	–	no

Table E.17-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Iodomethane	0 / 11	0	–	0.05	–	5.41E+01	n	–	–	–	no
Isopropyl alcohol	0 / 1	0	–	0.2	–	NA	n	–	–	–	no
Isopropylbenzene	0 / 3	0	–	0.01	–	1.03E+04	n	–	–	–	no
m-Dichlorobenzene	0 / 11	0	–	0.33	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0 / 11	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0 / 11	0	–	0.01	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0 / 11	0	–	0.05	–	2.31E+04	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0 / 3	0	–	0.01	–	6.55E+04	c	–	–	–	no
Nitrobenzene	0 / 8	0	–	0.33	–	5.20E+02	n	–	–	–	no
n-Propylbenzene	0 / 3	0	–	0.01	–	1.64E+04	n	–	–	–	no
Styrene (monomer)	0 / 11	0	–	0.01	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0 / 11	0	–	0.01	–	3.38E+02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0 / 3	0	–	0.01	–	2.78E+03	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0 / 11	0	–	0.01	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0 / 11	0	–	0.01	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0 / 11	0	–	0.01	–	1.24E+03	n	–	–	–	no
1,2,3-Trichlorobenzene	0 / 3	0	–	0.05	–	2.48E+02	n	–	–	–	no
1,2,3-Trichloropropane	0 / 11	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0 / 11	0	–	0.33	–	4.27E+02	n	–	–	–	no
1,2,4-Trimethylbenzene	0 / 3	0	–	0.01	–	4.65E+02	n	–	–	–	no
1,3,5-Trimethylbenzene	0 / 3	0	–	0.01	–	3.10E+03	n	–	–	–	no
Trichloroethylene	0 / 11	0	–	0.01	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0 / 8	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0 / 11	0	–	0.01	–	2.48E+02	c	–	–	–	no
m,p-Xylene	0 / 3	0	–	0.01	–	2.38E+04	n	–	–	–	no
o-Xylene	0 / 3	0	–	0.01	–	2.75E+04	n	–	–	–	no
Xylenes	0 / 8	0	–	0.005	–	3.13E+03	n	–	–	–	no
Semi Volatile Organic Compounds											
Benzidine	0 / 8	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0 / 8	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl butyl phthalate	0 / 8	0	–	0.33	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0 / 8	0	–	0.33	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0 / 8	0	–	0.33	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0 / 8	0	–	0.33	–	NA	n	–	–	–	no
2-Butoxy ethanol	0 / 3	0	–	0.25	–	2.38E+04	n	–	–	–	no
4-Chloro-3-methylphenol	0 / 8	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0 / 8	0	–	0.33	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0 / 8	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0 / 8	0	–	0.33	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0 / 8	0	–	0.33	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0 / 8	0	–	0.33	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0 / 8	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0 / 8	0	–	0.33	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0 / 8	0	–	0.33	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0 / 8	0	–	0.33	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0 / 8	0	–	0.33	–	9.53E+03	n	–	–	–	no
1,4-Dioxane	0 / 1	0	–	0.5	–	1.97E+04	c	–	–	–	no
Hexachloro-1,3-butadiene	0 / 11	0	–	0.33	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0 / 8	0	–	0.33	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0 / 8	0	–	0.33	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0 / 8	0	–	0.33	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0 / 8	0	–	0.33	–	1.91E+00	n	–	–	–	no

Table E.17-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
2-Methyl-4,6-dinitrophenol	0	/	8	0	–		2	–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/	8	0	–		0.33	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	8	0	–		2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	8	0	–		0.33	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	8	0	–		0.33	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	8	0	–		2	–	1.03E+03	c	–	–	–	no
Phenol	0	/	8	0	–		0.33	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/	3	0	–		0.01	–	4.76E+03	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	8	0	–		0.33	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	8	0	–		0.33	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	/	8	0	–		0.33	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	7	0	–		0.33	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	8	0	–		0.33	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	8	0	–		0.33	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	8	0	–		0.33	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	8	0	–		0.33	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	8	0	–		0.33	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	8	0	–		0.33	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	8	0	–		0.33	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/	8	0	–		0.33	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	8	0	–		0.33	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	8	0	–		0.33	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	8	0	–		0.33	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	8	0	–		0.33	–	2.13E+02	c	–	–	–	no
Naphthalene	0	/	11	0	–		0.33	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	8	0	–		0.33	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	8	0	–		0.33	–	6.68E+03	n	–	–	–	no
Explosives														
2,6-Dinitrotoluene	0	/	8	0	–		0.33	–	2.39E+02	n	–	–	–	no
Inorganics														
Arsenic	7	/	11	63.6	1.9		2	YES	6.54E+01	n	no	–	2.91E-02	no
Barium	4	/	11	36.4	170		110	YES	4.35E+03	n	no	–	3.91E-02	no
Cadmium	0	/	11	0	–		2.6	no	3.09E+02	n	–	–	–	no
Chromium	3	/	3	100	9.06		–	YES	4.49E+02	n	no	–	2.02E-02	no
Chromium (Hexavalent)	0	/	3	0	–		5	no	4.49E+02	n	–	–	–	no
Lead	4	/	11	36.4	58		26	no	8.00E+02	IEUBK	no	–	–	no
Mercury	4	/	11	36.4	0.3		0.09	no	6.36E+01	n	no	–	4.72E-03	no
Nitrate + Nitrite	2	/	3	66.7	15.4	!	1	–	NA	n	NA	–	–	no
Selenium	0	/	11	0	–		1	no	1.55E+03	n	–	–	–	no
Silver	4	/	11	36.4	7.6		5.3	no	1.55E+03	n	no	–	4.91E-03	no

Total Maximum / Screening Level Ratios	NA	0.1
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	NA	0.1

Target Organ Max/SL Ratios	
Kidney and Liver	0.04
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.03
Lungs	0.02

Table E.17-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
						Gastrointestinal Tract and Forestomach			NA	
						Whole Body			NA	
						Blood			NA	
						Nervous System			NA	
						Dental			NA	
						Red Blood Cells			NA	
						Glands			NA	
						Fetus			0.04	
						Immune System			NA	
						Development			NA	
						Reproduction			NA	
						Bone			NA	
						Not Available/ Not Reported			0.005	

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-6} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.17-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	0	/	26	0	–	no
Acrolein	0	/	8	0	–	no
Acrylonitrile	0	/	26	0	–	no
Benzene	0	/	26	0	–	no
Bis(2-chloroethyl)ether	0	/	8	0	–	no
Bis(2-chloroisopropyl)ether	0	/	8	0	–	no
Bromobenzene	0	/	18	0	–	no
Bromodichloromethane	0	/	18	0	–	no
Bromomethane	0	/	26	0	–	no
2-Butanone	0	/	26	0	–	no
tert-Butyl alcohol	0	/	8	0	–	no
n-Butylbenzene	0	/	18	0	–	no
sec-Butylbenzene	0	/	18	0	–	no
tert-Butylbenzene	0	/	18	0	–	no
Carbon disulfide	0	/	26	0	–	no
Carbon tetrachloride	0	/	26	0	–	no
CFC-11	0	/	26	0	–	no
CFC-12	0	/	26	0	–	no
Chlorobenzene	0	/	26	0	–	no
Chlorobromomethane	0	/	18	0	–	no
Chloroethane	0	/	26	0	–	no
2-Chloroethyl vinyl ether	0	/	26	0	–	no
Chloroform	0	/	26	0	–	no
Chloromethane	0	/	26	0	–	no
2-Chlorophenol	0	/	7	0	–	no
2-Chlorotoluene	0	/	18	0	–	no
4-Chlorotoluene	0	/	18	0	–	no
Cymene	0	/	18	0	–	no
1,2-Dibromoethane	0	/	18	0	–	no
Dibromomethane	0	/	26	0	–	no
1,2-Dichlorobenzene	0	/	26	0	–	no
1,4-Dichlorobenzene	0	/	26	0	–	no
1,4 Dichloro-2-butene	0	/	8	0	–	no
trans-1,4-Dichlorobutene	0	/	18	0	–	no
1,1-Dichloroethane	0	/	26	0	–	no
1,2-Dichloroethane	0	/	26	0	–	no
1,1-Dichloroethylene	0	/	26	0	–	no
cis-1,2-Dichloroethene	0	/	18	0	–	no
trans-1,2-Dichloroethene	0	/	26	0	–	no
Dichloromethane	0	/	25	0	–	no
1,2-Dichloropropane	0	/	26	0	–	no
1,3-Dichloropropane	0	/	18	0	–	no
2,2-Dichloropropane	0	/	18	0	–	no
1,1-Dichloropropene	0	/	18	0	–	no
cis-1,3-Dichloropropene	0	/	26	0	–	no
trans-1,3-Dichloropropene	0	/	26	0	–	no
Ethyl methacrylate	0	/	8	0	–	no
Ethylbenzene	0	/	26	0	–	no
Iodomethane	0	/	26	0	–	no
Isopropylbenzene	0	/	18	0	–	no
m-Dichlorobenzene	0	/	26	0	–	no
Methyl n-butyl ketone	0	/	26	0	–	no
Methylbenzene	0	/	26	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	26	0	–	no
Methyl tert-butyl ether (MTBE)	0	/	18	0	–	no
Nitrobenzene	0	/	8	0	–	no
n-Propylbenzene	0	/	18	0	–	no
Styrene (monomer)	0	/	26	0	–	no
Tetrachloroethene	0	/	26	0	–	no
1,1,1,2-Tetrachloroethane	0	/	18	0	–	no
1,1,2,2-Tetrachloroethane	0	/	26	0	–	no

Table E.17-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 150 (SWMU 150)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
1,1,1-Trichloroethane	0	/	26	0	–	no
1,1,2-Trichloroethane	0	/	26	0	–	no
1,2,3-Trichlorobenzene	0	/	18	0	–	no
1,2,3-Trichloropropane	0	/	26	0	–	no
1,2,4-Trichlorobenzene	0	/	26	0	–	no
1,2,4-Trimethylbenzene	0	/	18	0	–	no
1,3,5-Trimethylbenzene	0	/	18	0	–	no
Trichloroethylene	0	/	26	0	–	no
Vinyl acetate	0	/	8	0	–	no
Vinyl chloride	0	/	26	0	–	no
m,p-Xylene	0	/	18	0	–	no
o-Xylene	0	/	18	0	–	no
Xylenes	0	/	8	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	8	0	–	no
Acenaphthylene	0	/	7	0	–	no
Anthracene	0	/	8	0	–	no
2-Chloronaphthalene	0	/	8	0	–	no
Fluorene	0	/	8	0	–	no
Naphthalene	0	/	26	0	–	no
Phenanthrene	0	/	8	0	–	no

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway.

Table E.17.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	*Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	0	/	9	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	6	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	9	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	9	0	–	0.01		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	6	0	–	0.33		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	6	0	–	0.33		no	NA		NA	no	ND
Bromobenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Bromodichloromethane	0	/	3	0	–	0.01		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	9	0	–	0.05		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	9	0	–	0.1		no	89.6	*R5*	NA	no	ND
tert-Butyl alcohol	0	/	1	0	–	0.2		no	NA		NA	no	ND
n-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
sec-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
tert-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Carbon disulfide	0	/	9	0	–	0.01		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	9	0	–	0.01		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	9	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	9	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	9	0	–	0.01		no	0.05	*R4*	NA	no	ND
Chlorobromomethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
Chlorodibromomethane	0	/	9	0	–	0.01		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	9	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	9	0	–	0.05		no	NA		NA	no	ND
Chloroform	0	/	9	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	9	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	5	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
2-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
4-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Cymene	0	/	3	0	–	0.01		no	NA		NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP)	0	/	3	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	3	0	–	0.01		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	9	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	9	0	–	0.33		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	9	0	–	0.33		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	9	0	–	0.33		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	6	0	–	0.02		no	NA		NA	no	ND
trans-1,4-Dichlorobutene	0	/	3	0	–	0.1		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	9	0	–	0.01		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	9	0	–	0.01		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	9	0	–	0.01		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	3	0	–	0.01		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	9	0	–	0.01		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	8	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	9	0	–	0.01		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND

Table E.17.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,1-Dichloropropene	0	/	3	0	–	0.01		no	NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	9	0	–	0.01		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	9	0	–	0.01		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	6	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	6	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	9	0	–	0.01		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	9	0	–	0.05		no	1.23	*R5*	NA	no	ND
Isopropyl alcohol	0	/	1	0	–	0.2		no	NA		NA	no	ND
Isopropylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Methyl n-butyl ketone	0	/	9	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	9	0	–	0.01		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	9	0	–	0.05		no	443	*R5*	NA	no	ND
Methyl tert-butyl ether (MTBE)	0	/	3	0	–	0.01		no	NA		NA	no	ND
Nitrobenzene	0	/	6	0	–	0.33		no	40	*R4*	NA	no	ND
n-Propylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Styrene (monomer)	0	/	9	0	–	0.01		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	9	0	–	0.01		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	3	0	–	0.01		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	9	0	–	0.01		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	9	0	–	0.01		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	9	0	–	0.01		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	3	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	9	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	9	0	–	0.33		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Trichloroethylene	0	/	9	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	6	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	9	0	–	0.01		no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Xylenes	0	/	6	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	6	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	6	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	6	0	–	0.33	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	6	0	–	0.33	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	6	0	–	0.33		no	NA		NA	no	ND
2-Butoxy ethanol	0	/	3	0	–	0.25		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	6	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	6	0	–	0.33		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	6	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	6	0	–	0.33		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	6	0	–	0.33		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	6	0	–	0.33	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	6	0	–	2		no	20	*R4*	NA	no	ND

Table E.17.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
2,4-Dinitrotoluene	0	/	6	0	–	0.33		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	6	0	–	0.33		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	6	0	–	0.33		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	6	0	–	0.33		no	709	*R5*	NA	no	ND
1,4-Dioxane	0	/	1	0	–	0.5		no	2.05	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	9	0	–	0.33	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	6	0	–	0.33	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	6	0	–	0.33		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	6	0	–	0.33		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	6	0	–	0.33	^	no	0.0000321	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	6	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	6	0	–	0.33		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	6	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	6	0	–	0.33		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	6	0	–	0.33		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	6	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	6	0	–	0.33		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	3	0	–	0.01		no	15.9	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	6	0	–	0.33		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	6	0	–	0.33		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	6	0	–	0.33		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	5	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	6	0	–	0.33		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	6	0	–	0.33	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	6	0	–	0.33		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	6	0	–	0.33		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	6	0	–	0.33		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	6	0	–	0.33	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	6	0	–	0.33		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	6	0	–	0.33		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	6	0	–	0.33		no	109	*R5*	NA	no	ND
Naphthalene	0	/	9	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	6	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	6	0	–	0.33	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	5	/	9	55.6	1.5	2		YES	18	*EcoSSL*	0.08	no	≤ BKGD
Barium	3	/	9	33.3	75.2	110		YES	330	*EcoSSL*	0.2	no	≤ BKGD
Cadmium	0	/	9	0	–	2.6	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	3	/	3	100	9.06	–		YES	26	*EcoSSL*	0.3	no	≤ BKGD
Chromium (Hexavalent)	0	/	3	0	–	5		no	130	*EcoSSL*	NA	no	ND
Lead	4	/	9	44.4	58	26		no	11	*EcoSSL*	5	**YES**	HQ > 1

Table E.17.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Mercury	3	/	9	33.3	0.3	0.09		no	0.1	*R4*	3	**YES**	HQ > 1
Nitrate + Nitrite	2	/	3	66.7	15.4	1		–	NA		NA	**YES**	NSL
Selenium	0	/	9	0	–	1	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	4	/	9	44.4	7.6	5.3		no	4.2	*EcoSSL*	2	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.17.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	11	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	8	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	11	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	11	0	–	0.01		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	8	0	–	0.33		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	8	0	–	0.33		no	NA		NA	no	ND
Bromobenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Bromodichloromethane	0	/	3	0	–	0.01		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	11	0	–	0.05		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	11	0	–	0.1		no	89.6	*R5*	NA	no	ND
tert-Butyl alcohol	0	/	1	0	–	0.2		no	NA		NA	no	ND
n-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
sec-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
tert-Butylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Carbon disulfide	0	/	11	0	–	0.01		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	11	0	–	0.01		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	11	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	11	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	11	0	–	0.01		no	0.05	*R4*	NA	no	ND
Chlorobromomethane	0	/	3	0	–	0.01		no	NA		NA	no	ND
Chlorodibromomethane	0	/	11	0	–	0.01		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	11	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	11	0	–	0.05		no	NA		NA	no	ND
Chloroform	0	/	11	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	11	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	7	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
2-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
4-Chlorotoluene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Cymene	0	/	3	0	–	0.01		no	NA		NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP)	0	/	3	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	3	0	–	0.01		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	11	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	11	0	–	0.33		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	11	0	–	0.33		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	11	0	–	0.33		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	8	0	–	0.02		no	NA		NA	no	ND
trans-1,4-Dichlorobutene	0	/	3	0	–	0.1		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	11	0	–	0.01		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	11	0	–	0.01		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	11	0	–	0.01		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	3	0	–	0.01		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	11	0	–	0.01		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	10	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	11	0	–	0.01		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	3	0	–	0.01		no	700	*R4s*	NA	no	ND

Table E.17.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,1-Dichloropropene	0	/	3	0	–	0.01		no	NA		NA	no	ND
cis-1,3-Dichloropropene	0	/	11	0	–	0.01		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	11	0	–	0.01		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	8	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	8	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	11	0	–	0.01		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	11	0	–	0.05		no	1.23	*R5*	NA	no	ND
Isopropyl alcohol	0	/	1	0	–	0.2		no	NA		NA	no	ND
Isopropylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Methyl n-butyl ketone	0	/	11	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	11	0	–	0.01		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	11	0	–	0.05		no	443	*R5*	NA	no	ND
Methyl tert-butyl ether (MTBE)	0	/	3	0	–	0.01		no	NA		NA	no	ND
Nitrobenzene	0	/	8	0	–	0.33		no	40	*R4*	NA	no	ND
n-Propylbenzene	0	/	3	0	–	0.01		no	NA		NA	no	ND
Styrene (monomer)	0	/	11	0	–	0.01		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	11	0	–	0.01		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	3	0	–	0.01		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	11	0	–	0.01		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	11	0	–	0.01		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	11	0	–	0.01		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	3	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	11	0	–	0.02		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	11	0	–	0.33		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
1,3,5-Trimethylbenzene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Trichloroethylene	0	/	11	0	–	0.01	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	8	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	11	0	–	0.01		no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	3	0	–	0.01		no	0.05	*R4s*	NA	no	ND
Xylenes	0	/	8	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	8	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	8	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	8	0	–	0.33	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	8	0	–	0.33	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	8	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	8	0	–	0.33		no	NA		NA	no	ND
2-Butoxy ethanol	0	/	3	0	–	0.25		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	8	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	8	0	–	0.33		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	8	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	8	0	–	0.33		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	8	0	–	0.33		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	8	0	–	0.33	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	8	0	–	2		no	20	*R4*	NA	no	ND

Table E.17.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
2,4-Dinitrotoluene	0	/	8	0	–	0.33		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	8	0	–	0.33		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	8	0	–	0.33		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	8	0	–	0.33		no	709	*R5*	NA	no	ND
1,4-Dioxane	0	/	1	0	–	0.5		no	2.05	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	11	0	–	0.33	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	8	0	–	0.33	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	8	0	–	0.33		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	8	0	–	0.33		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	8	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	8	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	8	0	–	0.33		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	8	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	8	0	–	0.33		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	8	0	–	0.33		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	8	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	8	0	–	0.33		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	3	0	–	0.01		no	15.9	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	8	0	–	0.33		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	8	0	–	0.33		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	8	0	–	0.33		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	7	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	8	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	8	0	–	0.33		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	8	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	8	0	–	0.33	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	8	0	–	0.33		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	8	0	–	0.33		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	8	0	–	0.33		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	8	0	–	0.33	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	8	0	–	0.33		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	8	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	8	0	–	0.33		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	8	0	–	0.33		no	109	*R5*	NA	no	ND
Naphthalene	0	/	11	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	8	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	8	0	–	0.33	^	no	0.1	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	8	0	–	0.33	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	7	/	11	63.6	1.9	2		YES	18	*EcoSSL*	0.1	no	≤ BKGD
Barium	4	/	11	36.4	170	110		YES	330	*EcoSSL*	0.5	no	≤ BKGD
Cadmium	0	/	11	0	–	2.6	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	3	/	3	100	9.06	–		YES	26	*EcoSSL*	0.3	no	≤ BKGD
Chromium (Hexavalent)	0	/	3	0	–	5		no	130	*EcoSSL*	NA	no	ND
Lead	4	/	11	36.4	58	26		no	11	*EcoSSL*	5	**YES**	HQ > 1

Table E.17.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Mercury	4	/	11	36.4	0.3	0.09		no	0.1	*R4*	3	**YES**	HQ > 1
Nitrate + Nitrite	2	/	3	66.7	15.4	1		–	NA		NA	**YES**	NSL
Selenium	0	/	11	0	–	1	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	4	/	11	36.4	7.6	5.3		no	4.2	*EcoSSL*	2	**YES**	HQ > 1

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.17.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Lead	58	m	11	*EcoSSL*	5	**YES**	**HQ > 1**	YES
Mercury	0.3	m	0.1	*R4*	3	**YES**	**HQ > 1**	no
Nitrate + Nitrite	15.4	m	NA		NA	**YES**	**NSL**	no
Silver	7.6	m	4.2	*EcoSSL*	2	**YES**	**HQ > 1**	YES

Notes:
BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.17.ERA-4
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Inorganics								
Lead	58	m	11	*EcoSSL*	5	**YES**	**HQ > 1**	YES
Mercury	0.3	m	0.1	*R4*	3	**YES**	**HQ > 1**	no
Nitrate + Nitrite	15.4	m	NA		NA	**YES**	**NSL**	no
Silver	7.6	m	4.2	*EcoSSL*	2	**YES**	**HQ > 1**	YES

Notes:
BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.17.ERA-5
Summary of BERA Constituents of Potential Ecological Concern and
Exposure Point Concentrations in Soil
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

			Uptake Model Exposure Point Concentration (mg/kg) [a]					
	BERA COPEC?		0-2 ft bgs			0-10 ft bgs		
	0-2 ft bgs	0-10 ft bgs	Maximum		Refined	Maximum		Refined
Constituent			**Scenario**		**Scenario**	**Scenario**		**Scenario**
Inorganics								
Lead	YES	YES	58	m	18.4	58	m	17.3
Mercury	YES	YES	0.3	m	0.0789	0.3	m	0.0791
Nitrate + Nitrite	YES	YES	15.4	m	5.72	15.4	m	5.72
Silver	YES	YES	7.6	m	3.73	7.6	m	3.52

Notes:

BERA = Baseline Ecological Risk Assessment.

COPEC = Constituent of Potential Ecological Concern.

ft bgs = Feet below ground surface.

mg/kg = Milligrams per kilogram.

[a] The maximum scenario exposure point concentrations (EPCs) for uptake models were set at the lesser of the upper confidence limit (UCL) or the maximum concentration where the UCL was incalculable and those for the refined scenario were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). The UCLs were calculated using ProUCL 4.0; the UCL used is the one recommended by ProUCL 4.0. EPCs marked with "m" are based on the maximum detected concentration.

Table E.17.ERA-6
Maximum Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	58	m	2.59E+00	3.10E-01	0.33	47	4.7	0.007	0.07
Mercury	0.3	m	1.08E-01	3.24E-02	0.023	23	2.3	0.001	0.01
Silver	7.6	m	1.68E-03	1.28E-02	0.024	6	0.6	0.004	0.04

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-7
Refined Scenario Food Chain Modeling for the Merriam's Kangaroo Rat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	18.4	8.43E+00	1.36E+00	1.41E+00	1.63E-01	0.16	47	4.7	0.003	0.03
Mercury	0.0789	3.72E+01	1.08E-01	6.21E+00	8.52E-03	0.048	23	2.3	0.002	0.02
Silver	3.73	3.42E-01	1.68E-03	1.27E+00	6.27E-03	0.02	6	0.6	0.003	0.03

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-8
Maximum Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	58	m	2.13E+01	3.56E+00	4.5	47	4.7	0.1	1
Mercury	0.3	m	5.76E+01	9.62E+00	12	38	3.8	0.3	3
Silver	7.6	m	3.42E-01	2.60E+00	3.2	6	0.6	0.5	5

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-9
Refined Scenario Food Chain Modeling for the Desert Shrew
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Lead	18.4	8.43E+00	1.41E+00	1.8	47	4.7	0.04	0.4
Mercury	0.0789	3.72E+01	6.21E+00	7.5	38	3.8	0.2	2
Silver	3.73	3.42E-01	1.27E+00	1.6	6	0.6	0.3	3

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-10
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	58	m	6.50E+00	2.08E+00	0.29	47	4.7	0.006	0.06
Mercury	0.3	m	1.25E+01	3.75E+00	0.41	8.5	0.85	0.05	0.5
Silver	7.6	m	1.28E-03	9.73E-03	0.0086	6	0.6	0.001	0.01

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-11
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d] mg/kg-BW-day	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal		LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Lead	18.4	8.43E+00	1.36E+00	3.91E+00	1.41E+00	1.63E-01	1.25E+00	0.000015	47	4.7	3E-07	3E-06
Mercury	0.0789	3.72E+01	1.08E-01	1.25E+01	6.21E+00	8.52E-03	9.86E-01	0.000011	8.5	0.85	0.000001	0.00001
Silver	3.73	3.42E-01	1.68E-03	1.28E-03	1.27E+00	6.27E-03	4.77E-03	0.0000006	6	0.6	1E-07	1E-06

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-12
Maximum Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	58	m	6.50E+00	2.08E+00	0.29	47	4.7	0.006	0.06
Mercury	0.3	m	1.25E+01	3.75E+00	0.41	8.5	0.85	0.05	0.5
Silver	7.6	m	1.28E-03	9.73E-03	0.0086	6	0.6	0.001	0.01

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-13
Refined Scenario Food Chain Modeling for the Desert Kit Fox
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]			Estimated Dietary Tissue Concentrations [c] (mg/kg)			Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Mammal	Invertebrate	Vegetation	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics												
Lead	17.3	8.02E+00	1.31E+00	3.81E+00	1.34E+00	1.57E-01	1.22E+00	0.000015	47	4.7	3E-07	0.000003
Mercury	0.0791	3.72E+01	1.08E-01	1.25E+01	6.22E+00	8.54E-03	9.89E-01	0.000011	8.5	0.85	0.000001	0.00001
Silver	3.52	3.42E-01	1.68E-03	1.28E-03	1.20E+00	5.91E-03	4.51E-03	0.00000056	6	0.6	9E-08	0.0000009

Notes:

HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-25 for sources of mammalian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-14
Maximum Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Vegetation	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	58	m	2.59E+00	3.10E-01	0.47	16.3	1.63	0.03	0.3
Mercury	0.3	m	1.08E-01	3.24E-02	0.025	0.9	0.45	0.03	0.06
Silver	7.6	m	1.68E-03	1.28E-02	0.041	2.02	0.202	0.02	0.2

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-15
Refined Scenario Food Chain Modeling for the Mourning Dove
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	18.4	8.43E+00	1.36E+00	1.41E+00	1.63E-01	0.000096	16.3	1.63	0.000006	0.00006
Mercury	0.0789	3.72E+01	1.08E-01	6.21E+00	8.52E-03	0.00003	0.9	0.45	0.00003	0.00007
Silver	3.73	3.42E-01	1.68E-03	1.27E+00	6.27E-03	0.000015	2.02	0.202	0.000007	0.00007

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-16
Maximum Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Invertebrate	Mammal	Invertebrate	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	58	m	2.13E+01	6.50E+00	3.56E+00	4.9	16.3	1.63	0.3	3
Mercury	0.3	m	5.76E+01	1.25E+01	9.62E+00	11	0.9	0.45	10	20
Silver	7.6	m	3.42E-01	1.28E-03	2.60E+00	3	2.02	0.202	1	10

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-17
Refined Scenario Food Chain Modeling for the Cactus Wren
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]		Estimated Dietary Tissue Concentrations [c] (mg/kg)		Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Invertebrate	Vegetation	Invertebrate	Vegetation	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics										
Lead	18.4	8.43E+00	1.36E+00	1.41E+00	1.63E-01	0.1	16.3	1.63	0.006	0.06
Mercury	0.0789	3.72E+01	1.08E-01	6.21E+00	8.52E-03	0.35	0.9	0.45	0.4	0.8
Silver	3.73	3.42E-01	1.68E-03	1.27E+00	6.27E-03	0.077	2.02	0.202	0.04	0.4

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-18
Maximum Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Maximum Scenario EPC [a] (mg/kg)		Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Maximum Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Maximum Scenario HQ [f]	
			Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics									
Lead	58	m	6.50E+00	2.08E+00	0.58	16.3	1.63	0.04	0.4
Mercury	0.3	m	1.25E+01	3.75E+00	0.93	0.9	0.45	1	2
Silver	7.6	m	1.28E-03	9.73E-03	0.011	2.02	0.202	0.005	0.05

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) for the maximum scenario were set at the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Maximum hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-19
Refined Scenario Food Chain Modeling for the Red-Tailed Hawk
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Constituent	Refined Scenario EPC [a] (mg/kg)	Soil Bioconcentration Factors [b]	Estimated Dietary Tissue Concentrations [c] (mg/kg)	Refined Estimated Dietary Ingestion [d]	Toxicity Reference Values [e] mg/kg-BW-day		Refined Scenario HQ [f]	
		Mammal	Mammal	mg/kg-BW-day	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics								
Lead	18.4	3.91E+00	1.25E+00	0.00004	16.3	1.63	0.000002	0.00002
Mercury	0.0789	1.25E+01	9.86E-01	0.00003	0.9	0.45	0.00003	0.00007
Silver	3.73	1.28E-03	4.77E-03	0.00000065	2.02	0.202	0.0000003	0.000003

Notes:
HQ = Hazard Quotient.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
mg/kg-BW-day = Milligrams per kilogram of body weight each day.
NOAEL = No observed adverse effect level.

[a] The exposure point concentrations (EPCs) were set at the lower of the arithmetic average (non detects were set at 1/2 the sample quantification limit) and the maximum detected concentration.
EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-26 for sources of soil bioaccumulation factors.
[c] Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor (in wet weight) or Estimated tissue concentration = concentration in exposure medium x bioaccumulation factor x tissue percent dry weight (i.e., 12% for plants, 16.7% for invertebrates, and 32% for mammals).
[d] See Table E.2-29 for equations used to estimate dietary ingestion and Table E.2-24 for receptor exposure assumptions.
[e] See Table E.2-28 for sources of avian toxicity reference values.
[f] Refined hazard quotient (HQ) = (estimated dietary ingestion)/(toxicity reference value). HQs are rounded to the nearest whole number.

Table E.17.ERA-20
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models - Mammalian Species [c]						Results of Refined Food Chain Models - Avian Species [c]					
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Merriam's Kangaroo Rat		Desert Shrew		Desert Kit Fox		Morning Dove		Cactus Wren		Red-Tailed Hawk	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL
Inorganics																			
Lead	4	-	9	18.4	5	EcoSSL	avi	0.003	0.03	0.04	0.4	0.0000003	0.000003	0.000006	0.00006	0.006	0.06	0.000002	0.00002
Mercury	3	-	9	0.0789	3	R4		0.002	0.02	0.2	**2**	0.000001	0.00001	0.00003	0.00007	0.4	0.8	0.00003	0.00007
Silver	4	-	9	3.73	2	EcoSSL	avi	0.003	0.03	0.3	**3**	0.0000001	0.000001	0.000007	0.00007	0.04	0.4	0.0000003	0.000003

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit).
EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.17.ERA-21
Summary of Refined Ecological Risk Characterization Results - Terrestrial Habitat
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

	Soil				BERA Level Assessment			Results of Refined Food Chain Models [c]	
	Frequency of Detection			EPC	Hazard Quotient	Ecological Screening Level [b]		Desert Kit Fox	
Constituent	# detects / n samples			(mg/kg)	[a]	Source	Basis	LOAEL	NOAEL
Inorganics									
Lead	4	-	11	17.3	5	EcoSSL	avi	0.0000003	0.000003
Mercury	4	-	11	0.0791	3	R4		0.000001	0.00001
Silver	4	-	11	3.52	2	EcoSSL	avi	0.00000009	0.0000009

Notes:

BERA = Baseline Ecological Risk Assessment.
COPEC = Constituent of Potential Ecological Concern.
EPC = The exposure point concentrations (EPCs) were set at the arithmetic average (non detects were set at 1/2 the sample quantification limit). EPCs marked with "m" are the maximum concentration.
ESL = Ecological Screening Critiera.
LOAEL = Lowest observed adverse effect level.
mg/kg = Milligrams per kilogram.
NOAEL = No observed adverse effect level.

[a] Hazard quotients (HQs) greater than one are presented in bold font. HQs are rounded to the nearest whole number.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
R5: Region 5 Ecological Screening Levels (USEPA 2003c; R5).
EcoSSL: USEPA Ecological Soil Screening Levels (USEPA 2005, EcoSSL).
Where readily available (i.e., EcoSSLs), the basis of the ESL is presented.
[c] Foodchain modeling was conducted for bioaccumulative COPECs.

Table E.18.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	2	-	4	50	1.2	-	3.9	0.1	-	0.1	152B1(5/13/1992)	1.3	–
Acrolein	0	-	4	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	4	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–
Bromomethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
2-Butanone	0	-	4	0	–	-	–	0.1	-	0.1	–	0.05	–
Carbon disulfide	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Carbon tetrachloride	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
CFC-11	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–
CFC-12	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–
Chlorobenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chlorodibromomethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloroethane	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–
Chloroform	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloromethane	0	-	4	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	4	0	–	-	–	0.0003	-	0.3	–	0.113	–
Dibromomethane	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2-Dichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4-Dichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–
1,4 Dichloro-2-butene	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloroethane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1-Dichloroethylene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Dichloromethane	0	-	4	0	–	-	–	0.005	-	0.05	–	0.0138	–
1,2-Dichloropropane	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
cis-1,3-Dichloropropene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Ethanol	0	-	4	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	0	-	4	0	–	-	–	0.005	-	0.005	–	0.0025	–
Iodomethane	0	-	4	0	–	-	–	0.02	-	0.02	–	0.01	–
m-Dichlorobenzene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–
Methyl n-butyl ketone	0	-	4	0	–	-	–	0.05	-	0.05	–	0.025	–

Table E.18.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
Methylbenzene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	4	0	–	-	–		0.05	-	0.05		–	0.025	–
Nitrobenzene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Styrene (monomer)	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
Tetrachloroethene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,1,1-Trichloroethane	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,1,2-Trichloroethane	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
1,2,3-Trichloropropane	0	-	4	0	–	-	–		0.02	-	0.02		–	0.01	–
1,2,4-Trichlorobenzene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Trichloroethylene	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
Vinyl acetate	0	-	4	0	–	-	–		0.01	-	0.01		–	0.005	–
Vinyl chloride	0	-	4	0	–	-	–		0.01	-	0.01		–	0.005	–
Xylenes	0	-	4	0	–	-	–		0.005	-	0.005		–	0.0025	–
Semi Volatile Organic Compounds															
Benzidine	0	-	4	0	–	-	–		1.7	-	1.7		–	0.85	–
Benzoic acid	0	-	4	0	–	-	–		2	-	2		–	1	–
Benzyl butyl phthalate	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Bis(2-chloroethoxy)methane	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
4-Bromophenyl phenyl ether	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
4-Chloro-3-methylphenol	0	-	4	0	–	-	–		0.7	-	0.7		–	0.35	–
4-Chlorophenyl phenyl ether	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
3,3'-Dichlorobenzidine	0	-	4	0	–	-	–		0.7	-	0.7		–	0.35	–
2,4-Dichlorophenol	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Diethyl phthalate	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
2,4-Dimethylphenol	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
2,4-Dinitrophenol	0	-	4	0	–	-	–		2	-	2		–	1	–
2,4-Dinitrotoluene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Dimethyl phthalate	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Di-n-butyl phthalate	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Di-n-octyl phthalate	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Hexachloro-1,3-butadiene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Hexachlorobenzene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Hexachlorocyclopentadiene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Hexachloroethane	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	4	0	–	-	–		0.33	-	0.33		–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	4	0	–	-	–		0.00033	-	2		–	0.75	–

Table E.18.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects				Sample Quantitation Limit				Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)		Min (mg/kg)	-	Max (mg/kg)				
2-Nitrophenol	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
4-Nitrophenol	0	-	4	0	–	-	–		2	-	2		–	1	–
n-Nitrosodi-n-propylamine	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
n-Nitrosodiphenylamine	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Pentachlorophenol	0	-	4	0	–	-	–		2	-	2		–	1	–
Phenol	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
2,4,6-Trichlorophenol	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Polycyclic Aromatic Hydrocarbons															
Acenaphthene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Acenaphthylene	0	-	4	0	–	-	–		0.0003	-	0.3		–	0.113	–
Anthracene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Benzo(a)anthracene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Benzo(a)pyrene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Benzo(b)fluoranthene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Benzo(g,h,i)perylene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Benzo(k)fluoranthene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
1,2-Benzphenanthracene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
2-Chloronaphthalene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Dibenz(a,h)anthracene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Fluoranthene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Fluorene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Naphthalene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Phenanthrene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Pyrene	0	-	4	0	–	-	–		0.3	-	0.3		–	0.15	–
Pesticides															
Aldrin	0	-	2	0	–	-	–		0.0034	-	0.0034		–	0.0017	–
alpha-BHC	0	-	2	0	–	-	–		0.0034	-	0.0034		–	0.0017	–
beta-BHC	0	-	2	0	–	-	–		0.0034	-	0.0034		–	0.0017	–
Camphechlor	0	-	2	0	–	-	–		0.067	-	0.067		–	0.0335	–
Chlordane	0	-	2	0	–	-	–		0.034	-	0.034		–	0.017	–
4,4-DDD	0	-	2	0	–	-	–		0.0067	-	0.0067		–	0.00335	–
4,4-DDE	0	-	2	0	–	-	–		0.0067	-	0.0067		–	0.00335	–
4,4-DDT	0	-	2	0	–	-	–		0.0067	-	0.0067		–	0.00335	–
delta-BHC	0	-	2	0	–	-	–		0.0034	-	0.0034		–	0.0017	–
Dieldrin	0	-	2	0	–	-	–		0.0067	-	0.0067		–	0.00335	–
Endosulfan I	0	-	2	0	–	-	–		0.0034	-	0.0034		–	0.0017	–

Table E.18.Data-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Endosulfan II	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endosulfan sulfate	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
Endrin aldehyde	0	-	2	0	–	-	–	0.0067	-	0.0067	–	0.00335	–
gamma-BHC	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
Heptachlor epoxide	0	-	2	0	–	-	–	0.0034	-	0.0034	–	0.0017	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	2	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	2	0	–	-	–	13	-	13	–	6.5	–
Polychlorinated Biphenyls													
Aroclor 1221	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1232	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1242	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1254	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor 1260	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1016	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Aroclor-1248	0	-	2	0	–	-	–	0.034	-	0.034	–	0.017	–
Explosives													
2,6-Dinitrotoluene	0	-	4	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	1	-	4	25	0.94	-	0.94	0.46	-	0.5	151B1(5/13/1992)	0.415	–
Barium	0	-	4	0	–	-	–	92	-	110	–	48.5	–
Cadmium	0	-	4	0	–	-	–	2.3	-	2.7	–	1.2	–
Lead	0	-	4	0	–	-	–	23	-	27	–	12	–
Mercury	0	-	4	0	–	-	–	0.07	-	0.1	–	0.0463	–
Selenium	0	-	4	0	–	-	–	0.44	-	0.5	–	0.235	–
Silver	0	-	4	0	–	-	–	4.6	-	5.4	–	2.4	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.18.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min - Max (mg/kg)		Min - Max (mg/kg)					
Volatile Organic Compounds										
Acetone	2 - 6	33.3	1.2 -	3.9	0.1 -	0.1	152B1(5/13/1992)	0.883	–	Y
Acrolein	0 - 6	0	– -	–	0.2 -	0.2	–	0.1	–	Y
Acrylonitrile	0 - 6	0	– -	–	0.1 -	0.1	–	0.05	–	Y
Benzene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Bis(2-chloroethyl)ether	0 - 6	0	– -	–	0.3 -	0.3	–	0.15	–	Y
Bis(2-chloroisopropyl)ether	0 - 6	0	– -	–	0.3 -	0.3	–	0.15	–	Y
Bromomethane	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
2-Butanone	0 - 6	0	– -	–	0.1 -	0.1	–	0.05	–	Y
Carbon disulfide	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Carbon tetrachloride	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
CFC-11	0 - 6	0	– -	–	0.01 -	0.01	–	0.005	–	Y
CFC-12	0 - 6	0	– -	–	0.02 -	0.02	–	0.01	–	Y
Chlorobenzene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Chlorodibromomethane	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	N
Chloroethane	0 - 6	0	– -	–	0.01 -	0.01	–	0.005	–	Y
2-Chloroethyl vinyl ether	0 - 6	0	– -	–	0.01 -	0.01	–	0.005	–	Y
Chloroform	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Chloromethane	0 - 6	0	– -	–	0.01 -	0.01	–	0.005	–	Y
2-Chlorophenol	0 - 6	0	– -	–	0.0003 -	0.3	–	0.125	–	Y
Dibromomethane	0 - 6	0	– -	–	0.02 -	0.02	–	0.01	–	Y
1,2-Dichlorobenzene	0 - 6	0	– -	–	0.3 -	0.3	–	0.15	–	Y
1,4-Dichlorobenzene	0 - 6	0	– -	–	0.3 -	0.3	–	0.15	–	Y
1,4 Dichloro-2-butene	0 - 6	0	– -	–	0.02 -	0.02	–	0.01	–	Y
1,1-Dichloroethane	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
1,2-Dichloroethane	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
1,1-Dichloroethylene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
trans-1,2-Dichloroethene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Dichloromethane	0 - 6	0	– -	–	0.005 -	0.05	–	0.0138	–	Y
1,2-Dichloropropane	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
cis-1,3-Dichloropropene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
trans-1,3-Dichloropropene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Ethanol	0 - 6	0	– -	–	1 -	1	–	0.5	–	N
Ethyl methacrylate	0 - 6	0	– -	–	0.02 -	0.02	–	0.01	–	Y
Ethylbenzene	0 - 6	0	– -	–	0.005 -	0.005	–	0.0025	–	Y
Iodomethane	0 - 6	0	– -	–	0.02 -	0.02	–	0.01	–	Y
m-Dichlorobenzene	0 - 6	0	– -	–	0.3 -	0.3	–	0.15	–	Y

Table E.18.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Methyl n-butyl ketone	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Methylbenzene	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–	Y
Nitrobenzene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Styrene (monomer)	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Tetrachloroethene	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,2,2-Tetrachloroethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,1-Trichloroethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,1,2-Trichloroethane	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	6	0	–	-	–	0.02	-	0.02	–	0.01	–	Y
1,2,4-Trichlorobenzene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Trichloroethylene	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Vinyl acetate	0	-	6	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Vinyl chloride	0	-	6	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Xylenes	0	-	6	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Semi Volatile Organic Compounds														
Benzidine	0	-	6	0	–	-	–	1.7	-	1.7	–	0.85	–	N
Benzoic acid	0	-	6	0	–	-	–	2	-	2	–	1	–	N
Benzyl butyl phthalate	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Bis(2-chloroethoxy)methane	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Bis(2-ethylhexyl)phthalate	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Bromophenyl phenyl ether	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Chloro-3-methylphenol	0	-	6	0	–	-	–	0.7	-	0.7	–	0.35	–	N
4-Chlorophenyl phenyl ether	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
3,3'-Dichlorobenzidine	0	-	6	0	–	-	–	0.7	-	0.7	–	0.35	–	N
2,4-Dichlorophenol	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Diethyl phthalate	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4-Dimethylphenol	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4-Dinitrophenol	0	-	6	0	–	-	–	2	-	2	–	1	–	N
2,4-Dinitrotoluene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Dimethyl phthalate	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Di-n-butyl phthalate	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Di-n-octyl phthalate	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachloro-1,3-butadiene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachlorobenzene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachlorocyclopentadiene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Hexachloroethane	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Methanamine, n-methyl-n-nitroso	0	-	6	0	–	-	–	0.33	-	0.33	–	0.165	–	N

Table E.18.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
2-Methyl-4,6-dinitrophenol	0	-	6	0	–	-	–	0.00033	-	2	–	0.833	–	N
2-Nitrophenol	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
4-Nitrophenol	0	-	6	0	–	-	–	2	-	2	–	1	–	N
n-Nitrosodi-n-propylamine	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
n-Nitrosodiphenylamine	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Pentachlorophenol	0	-	6	0	–	-	–	2	-	2	–	1	–	N
Phenol	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2,4,6-Trichlorophenol	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Acenaphthylene	0	-	6	0	–	-	–	0.0003	-	0.3	–	0.125	–	Y
Anthracene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Benzo(a)anthracene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(a)pyrene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(b)fluoranthene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(g,h,i)perylene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Benzo(k)fluoranthene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
1,2-Benzphenanthracene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
2-Chloronaphthalene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Dibenz(a,h)anthracene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Fluoranthene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Fluorene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Indeno(1,2,3-cd)pyrene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Naphthalene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Phenanthrene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	Y
Pyrene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Pesticides														
Aldrin	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
alpha-BHC	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
beta-BHC	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Camphechlor	0	-	3	0	–	-	–	0.067	-	0.067	–	0.0335	–	N
Chlordane	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
4,4-DDD	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDE	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
4,4-DDT	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
delta-BHC	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Dieldrin	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N

Table E.18.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Endosulfan I	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Endosulfan II	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endosulfan sulfate	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
Endrin aldehyde	0	-	3	0	–	-	–	0.0067	-	0.0067	–	0.00335	–	N
gamma-BHC	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
Heptachlor epoxide	0	-	3	0	–	-	–	0.0034	-	0.0034	–	0.0017	–	N
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Total Petroleum Hydrocarbons (TPH)														
Petroleum hydrocarbons	0	-	3	0	–	-	–	13	-	13	–	6.5	–	N
Total Petroleum Hydrocarbons (TPH)	0	-	3	0	–	-	–	13	-	13	–	6.5	–	N
Polychlorinated Biphenyls														
Aroclor 1221	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1232	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1242	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1254	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor 1260	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1016	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Aroclor-1248	0	-	3	0	–	-	–	0.034	-	0.034	–	0.017	–	N
Explosives														
2,6-Dinitrotoluene	0	-	6	0	–	-	–	0.3	-	0.3	–	0.15	–	N
Inorganics														
Arsenic	3	-	6	50	0.8	-	1.2	0.46	-	0.5	151B1(5/13/1992)	0.61	–	N
Barium	2	-	6	33.3	97	-	99	92	-	110	152B1(5/13/1992)	65	–	N
Cadmium	0	-	6	0	–	-	–	0.91	-	2.7	–	0.959	–	N
Lead	0	-	6	0	–	-	–	9.1	-	27	–	9.59	–	N
Mercury	0	-	6	0	–	-	–	0.07	-	0.1	–	0.0475	–	N
Selenium	0	-	6	0	–	-	–	0.44	-	0.5	–	0.238	–	N
Silver	0	-	6	0	–	-	–	1.8	-	5.4	–	1.92	–	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

Table E.18.Data-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)				

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.18.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/L)	Max (mg/L)	Min (mg/L)	Max (mg/L)				
Volatile Organic Compounds										
Acetone	0 - 1	0	–	–	0.01	0.01	–	0.005	–	Y
Acetophenone	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
Acrylonitrile	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Benzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Bis(2-chloroethyl)ether	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
Bis(2-chloroisopropyl)ether	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
Bromobenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromodichloromethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Bromomethane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
2-Butanone	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
n-Butylbenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
sec-Butylbenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
tert-Butylbenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Carbon disulfide	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Carbon tetrachloride	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
CFC-11	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
CFC-12	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorobenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorobromomethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Chlorodibromomethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	N
Chloroethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
Chloroform	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Chloromethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
2-Chlorophenol	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
2-Chlorotoluene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
4-Chlorotoluene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Cymene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Dibenzofuran	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	Y
1,2-Dibromo-3-chloropropane (DBCP)	0 - 1	0	–	–	0.005	0.005	–	0.0025	–	N
1,2-Dibromoethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
Dibromomethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
1,4-Dichlorobenzene	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y
trans-1,4-Dichlorobutene	0 - 1	0	–	–	0.01	0.01	–	0.005	–	Y
1,1-Dichloroethane	0 - 1	0	–	–	0.001	0.001	–	0.0005	–	Y

Table E.18.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloroethane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloroethylene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,2-Dichloroethene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Iodomethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m-Dichlorobenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Methyl n-butyl ketone	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methylbenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Nitrobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Propylbenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Styrene (monomer)	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1,2-Tetrachloroethane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2-Trichloroethane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3,5-Trimethylbenzene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Trichloroethylene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Vinyl chloride	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	0	-	1	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N

Table E.18.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Aniline	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzidine	0	-	1	0	–	-	–	0.025	-	0.025	–	0.0125	–	N
Benzoic acid	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzyl alcohol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzyl butyl phthalate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Bis(2-chloroethoxy)methane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Bis(2-ethylhexyl)phthalate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
4-Bromophenyl phenyl ether	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Butoxy ethanol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
p-Chloroaniline	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
4-Chloro-3-methylphenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Chlorophenols	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–	N
4-Chlorophenyl phenyl ether	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
m,p-Cresol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Dibenz[a,,j]acridine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
3,3'-Dichlorobenzidine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,4-Dichlorophenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,6-Dichlorophenol	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Diethyl phthalate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
4-Dimethylaminoazobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,4-Dimethylphenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,4-Dinitrophenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,4-Dinitrotoluene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
a,a-Dimethylphenethylamine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Dimethyl phthalate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Di-n-butyl phthalate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Di-n-octyl phthalate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,4-Dioxane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Diphenylamine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Diphenylhydrazine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Ethyl methanesulfonate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachloro-1,3-butadiene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorocyclopentadiene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Methyl-4,6-dinitrophenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Methyl methanesulfonate	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Methylphenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N

Table E.18.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
2-Methyl pyridine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1-Naphthylamine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Naphthylamine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Nitroaniline	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
3-Nitroaniline	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
p-Nitroaniline	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2-Nitrophenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
4-Nitrophenol	0	-	1	0	–	-	–	0.025	-	0.025	–	0.0125	–	N
n-Nitrosodi-n-butylamine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Nitrosodi-n-propylamine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
n-Nitrosopiperidine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pentachlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pentachlorophenol	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Phenacetin	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Phenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Propyzamide	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pyridine	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,2,4,5-Tetrachlorobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Tribromomethane	1	-	1	100	0.00102	-	0.00102	–	-	–	HMW-12(12/5/2006)	0.00102	–	N
2,4,5-Trichlorophenol	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
2,4,6-Trichlorophenol	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Acenaphthylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Anthracene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Benzo(a)anthracene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(a)pyrene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(b)fluoranthene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(g,h,i)perylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Benzo(k)fluoranthene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1,2-Benzphenanthracene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1-Chloronaphthalene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Chloronaphthalene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Dibenz(a,h)anthracene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
7,12-Dimethylbenz(a)anthracene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Fluoranthene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Fluorene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Indeno(1,2,3-cd)pyrene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N

Table E.18.Data-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
3-Methylchloranthrene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
1-Methylnaphthalene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
2-Methylnaphthalene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Naphthalene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Phenanthrene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Pyrene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Pesticides														
Pentachloronitrobenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	0	-	1	0	–	-	–	5	-	5	–	2.5	–	N
Gasoline Range Organics (GRO)	0	-	1	0	–	-	–	0.1	-	0.1	–	0.05	–	N
Explosives														
2,6-Dinitrotoluene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Inorganics														
Ammonia	0	-	1	0	–	-	–	1	-	1	–	0.5	–	N
Cadmium	1	-	1	100	0.001	-	0.001	–	-	–	HMW-12(12/5/2006)	0.001	–	N
Chromium	1	-	1	100	0.181	-	0.181	–	-	–	HMW-12(12/5/2006)	0.181	–	N
Copper	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Fluoride	1	-	1	100	7.31	-	7.31	–	-	–	HMW-12(12/5/2006)	7.31	–	N
Lead	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Nitrate	1	-	1	100	126	-	126	–	-	–	HMW-12(12/5/2006)	126	–	N
Phosphorus	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–	N
Silver	0	-	1	0	–	-	–	0.002	-	0.002	–	0.001	–	N
Sodium	1	-	1	100	14800	-	14800	–	-	–	HMW-12(12/5/2006)	14800	–	N
Sulfate	1	-	1	100	16300	-	16300	–	-	–	HMW-12(12/5/2006)	16300	–	N
Zinc	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Other														
Bromide	1	-	1	100	5.9	-	5.9	–	-	–	HMW-12(12/5/2006)	5.9	–	N
Chloride	1	-	1	100	9350	-	9350	–	-	–	HMW-12(12/5/2006)	9350	–	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.18-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds													
Acetone	2	/	4	50	3.9	0.1	–	2.63E+05	n	no	–	1.48E-05	no
Acrolein	0	/	4	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/	4	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	0	/	4	0	–	0.005	–	4.71E+02	n	–	–	–	no
Bis(2-chloroethyl)ether	0	/	4	0	–	0.3	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	4	0	–	0.3	–	3.10E+03	c	–	–	–	no
Bromomethane	0	/	4	0	–	0.005	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/	4	0	–	0.1	–	1.48E+05	n	–	–	–	no
Carbon disulfide	0	/	4	0	–	0.005	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/	4	0	–	0.005	–	1.99E+02	n	–	–	–	no
CFC-11	0	/	4	0	–	0.01	–	5.82E+03	n	–	–	–	no
CFC-12	0	/	4	0	–	0.02	–	1.37E+03	n	–	–	–	no
Chlorobenzene	0	/	4	0	–	0.005	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/	4	0	–	0.005	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/	4	0	–	0.01	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	4	0	–	0.01	–	NA	n	–	–	–	no
Chloroform	0	/	4	0	–	0.005	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/	4	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/	4	0	–	0.3	–	1.55E+03	n	–	–	–	no
Dibromomethane	0	/	4	0	–	0.02	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/	4	0	–	0.3	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/	4	0	–	0.3	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/	4	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	0	/	4	0	–	0.005	–	6.88E+03	c	–	–	–	no
1,2-Dichloroethane	0	/	4	0	–	0.005	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/	4	0	–	0.005	–	1.83E+03	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	4	0	–	0.005	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/	4	0	–	0.05	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/	4	0	–	0.005	–	1.17E+02	n	–	–	–	no
cis-1,3-Dichloropropene	0	/	4	0	–	0.005	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/	4	0	–	0.005	–	5.10E+02	n	–	–	–	no
Ethanol	0	/	4	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/	4	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	0	/	4	0	–	0.005	–	6.63E+03	c	–	–	–	no
Iodomethane	0	/	4	0	–	0.02	–	5.41E+01	n	–	–	–	no
m-Dichlorobenzene	0	/	4	0	–	0.3	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	4	0	–	0.05	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	4	0	–	0.005	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	4	0	–	0.05	–	2.31E+04	n	–	–	–	no
Nitrobenzene	0	/	4	0	–	0.3	–	5.20E+02	n	–	–	–	no
Styrene (monomer)	0	/	4	0	–	0.005	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	4	0	–	0.005	–	3.38E+02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	4	0	–	0.005	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	4	0	–	0.005	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	4	0	–	0.005	–	1.24E+03	n	–	–	–	no
1,2,3-Trichloropropane	0	/	4	0	–	0.02	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	4	0	–	0.3	–	4.27E+02	n	–	–	–	no
Trichloroethylene	0	/	4	0	–	0.005	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	4	0	–	0.01	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	4	0	–	0.01	–	2.48E+02	c	–	–	–	no
Xylenes	0	/	4	0	–	0.005	–	3.13E+03	n	–	–	–	no

Table E.18-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Semi Volatile Organic Compounds													
Benzidine	0	/	4	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/	4	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl butyl phthalate	0	/	4	0	–	0.3	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	4	0	–	0.3	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/	4	0	–	0.3	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	/	4	0	–	0.3	–	NA	n	–	–	–	no
4-Chloro-3-methylphenol	0	/	4	0	–	0.7	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	4	0	–	0.3	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	4	0	–	0.7	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	4	0	–	0.3	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	4	0	–	0.3	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	4	0	–	0.3	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	4	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	4	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/	4	0	–	0.3	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/	4	0	–	0.3	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/	4	0	–	0.3	–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	4	0	–	0.3	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	4	0	–	0.3	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	4	0	–	0.3	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	4	0	–	0.3	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	4	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	4	0	–	2	–	2.38E+01	n	–	–	–	no
2-Nitrophenol	0	/	4	0	–	0.3	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	4	0	–	2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	4	0	–	0.3	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	4	0	–	0.3	–	3.40E+04	c	–	–	–	no
Pentachlorophenol	0	/	4	0	–	2	–	1.03E+03	c	–	–	–	no
Phenol	0	/	4	0	–	0.3	–	6.88E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	4	0	–	0.3	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	4	0	–	0.3	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	4	0	–	0.3	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	4	0	–	0.3	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	4	0	–	0.3	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	4	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	4	0	–	0.3	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	4	0	–	0.3	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	4	0	–	0.3	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	4	0	–	0.3	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	4	0	–	0.3	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/	4	0	–	0.3	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	4	0	–	0.3	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	4	0	–	0.3	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	4	0	–	0.3	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	4	0	–	0.3	–	2.13E+02	c	–	–	–	no
Naphthalene	0	/	4	0	–	0.3	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	4	0	–	0.3	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	4	0	–	0.3	–	6.68E+03	n	–	–	–	no
Pesticides													
Aldrin	0	/	2	0	–	0.003	–	7.15E+00	n	–	–	–	no

Table E.18-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
alpha-BHC	0	/	2	0	–	0.003	–	2.63E+01	c	–	–	–	no
beta-BHC	0	/	2	0	–	0.003	–	9.19E+01	c	–	–	–	no
Camphechlor	0	/	2	0	–	0.067	–	1.50E+02	c	–	–	–	no
Chlordane	0	/	2	0	–	0.034	–	1.35E+02	n	–	–	–	no
4,4-DDD	0	/	2	0	–	0.007	–	6.95E+02	c	–	–	–	no
4,4-DDE	0	/	2	0	–	0.007	–	4.90E+02	c	–	–	–	no
4,4-DDT	0	/	2	0	–	0.007	–	1.42E+02	n	–	–	–	no
delta-BHC	0	/	2	0	–	0.003	–	8.30E+01	n	–	–	–	no
Dieldrin	0	/	2	0	–	0.007	–	1.03E+01	c	–	–	–	no
Endosulfan I	0	/	2	0	–	0.003	–	1.43E+03	n	–	–	–	no
Endosulfan II	0	/	2	0	–	0.007	–	1.43E+03	n	–	–	–	no
Endosulfan sulfate	0	/	2	0	–	0.007	–	1.43E+03	n	–	–	–	no
Endrin	0	/	2	0	–	0.007	–	7.15E+01	n	–	–	–	no
Endrin aldehyde	0	/	2	0	–	0.007	–	7.15E+01	n	–	–	–	no
gamma-BHC	0	/	2	0	–	0.003	–	8.30E+01	n	–	–	–	no
Heptachlor	0	/	2	0	–	0.003	–	3.68E+01	c	–	–	–	no
Heptachlor epoxide	0	/	2	0	–	0.003	–	3.10E+00	n	–	–	–	no
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-	0	/	2	0	–	0.034	–	1.19E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)													
Total Petroleum Hydrocarbons (TPH)	0	/	2	0	–	13	–	NA	n	–	–	–	no
Polychlorinated Biphenyls													
Aroclor 1221	0	/	2	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1232	0	/	2	0	–	0.034	–	7.13E+01	c	–	–	–	no
Aroclor 1242	0	/	2	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor 1254	0	/	2	0	–	0.034	–	4.36E+00	n	–	–	–	no
Aroclor 1260	0	/	2	0	–	0.034	–	7.58E+01	c	–	–	–	no
Aroclor-1016	0	/	2	0	–	0.034	–	1.53E+01	n	–	–	–	no
Aroclor-1248	0	/	2	0	–	0.034	–	7.58E+01	c	–	–	–	no
Explosives													
2,6-Dinitrotoluene	0	/	4	0	–	0.3	–	2.39E+02	n	–	–	–	no
Inorganics													
Arsenic	1	/	4	25	0.94	0.5	YES	6.54E+01	n	no	–	1.44E-02	no
Barium	0	/	4	0	–	110	no	4.35E+03	n	–	–	–	no
Cadmium	0	/	4	0	–	2.7	no	3.09E+02	n	–	–	–	no
Lead	0	/	4	0	–	27	no	8.00E+02	IEUBK	–	–	–	no
Mercury	0	/	4	0	–	0.1	no	6.36E+01	n	–	–	–	no
Selenium	0	/	4	0	–	0.5	no	1.55E+03	n	–	–	–	no
Silver	0	/	4	0	–	5.4	no	1.55E+03	n	–	–	–	no

Total Maximum / Screening Level Ratios	NA	0.01
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	NA	0.01

Target Organ Max/SL Ratios	
Kidney and Liver	0.00001
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.01
Lungs	NA
Gastrointestinal Tract and Forestomach	NA
Whole Body	NA
Blood	NA

Table E.18-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
							Nervous System		NA	
							Dental		NA	
							Red Blood Cells		NA	
							Glands		NA	
							Fetus		NA	
							Immune System		NA	
							Development		NA	
							Reproduction		NA	
							Bone		NA	
							Not Available/ Not Reported		NA	

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-6} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.18-HHRA-2
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Soil All Depth
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	2	/	6	33	3.9	yes
Acrolein	0	/	6	0	–	no
Acrylonitrile	0	/	6	0	–	no
Benzene	0	/	6	0	–	no
Bis(2-chloroethyl)ether	0	/	6	0	–	no
Bis(2-chloroisopropyl)ether	0	/	6	0	–	no
Bromomethane	0	/	6	0	–	no
2-Butanone	0	/	6	0	–	no
Carbon disulfide	0	/	6	0	–	no
Carbon tetrachloride	0	/	6	0	–	no
CFC-11	0	/	6	0	–	no
CFC-12	0	/	6	0	–	no
Chlorobenzene	0	/	6	0	–	no
Chloroethane	0	/	6	0	–	no
2-Chloroethyl vinyl ether	0	/	6	0	–	no
Chloroform	0	/	6	0	–	no
Chloromethane	0	/	6	0	–	no
2-Chlorophenol	0	/	6	0	–	no
Dibromomethane	0	/	6	0	–	no
1,2-Dichlorobenzene	0	/	6	0	–	no
1,4-Dichlorobenzene	0	/	6	0	–	no
1,4 Dichloro-2-butene	0	/	6	0	–	no
1,1-Dichloroethane	0	/	6	0	–	no
1,2-Dichloroethane	0	/	6	0	–	no
1,1-Dichloroethylene	0	/	6	0	–	no
trans-1,2-Dichloroethene	0	/	6	0	–	no
Dichloromethane	0	/	6	0	–	no
1,2-Dichloropropane	0	/	6	0	–	no
cis-1,3-Dichloropropene	0	/	6	0	–	no
trans-1,3-Dichloropropene	0	/	6	0	–	no
Ethyl methacrylate	0	/	6	0	–	no
Ethylbenzene	0	/	6	0	–	no
Iodomethane	0	/	6	0	–	no
m-Dichlorobenzene	0	/	6	0	–	no
Methyl n-butyl ketone	0	/	6	0	–	no
Methylbenzene	0	/	6	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	6	0	–	no
Nitrobenzene	0	/	6	0	–	no
Styrene (monomer)	0	/	6	0	–	no
Tetrachloroethene	0	/	6	0	–	no
1,1,2,2-Tetrachloroethane	0	/	6	0	–	no
1,1,1-Trichloroethane	0	/	6	0	–	no
1,1,2-Trichloroethane	0	/	6	0	–	no
1,2,3-Trichloropropane	0	/	6	0	–	no
1,2,4-Trichlorobenzene	0	/	6	0	–	no
Trichloroethylene	0	/	6	0	–	no
Vinyl acetate	0	/	6	0	–	no
Vinyl chloride	0	/	6	0	–	no
Xylenes	0	/	6	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0	/	6	0	–	no
Acenaphthylene	0	/	6	0	–	no
Anthracene	0	/	6	0	–	no
2-Chloronaphthalene	0	/	6	0	–	no
Fluorene	0	/	6	0	–	no
Naphthalene	0	/	6	0	–	no
Phenanthrene	0	/	6	0	–	no

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhaltion pathway.

Table E.18-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	1	0	–	0.01	2.20E+02	n	–	–	–	no
Acetophenone	0	/	1	0	–	0.005	8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	1	0	–	0.001	8.50E-02	c	–	–	–	no
Benzene	0	/	1	0	–	0.001	1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	1	0	–	0.005	1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.005	NA	c	–	–	–	no
Bromobenzene	0	/	1	0	–	0.001	NA	n	–	–	–	no
Bromodichloromethane	0	/	1	0	–	0.001	2.10E-02	c	–	–	–	no
Bromomethane	0	/	1	0	–	0.005	2.00E-02	n	–	–	–	no
2-Butanone	0	/	1	0	–	0.005	4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	1	0	–	0.005	NA	n	–	–	–	no
n-Butylbenzene	0	/	1	0	–	0.001	2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	1	0	–	0.001	2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	1	0	–	0.001	2.90E-01	n	–	–	–	no
Carbon disulfide	0	/	1	0	–	0.001	5.60E-01	n	–	–	–	no
Carbon tetrachloride	0	/	1	0	–	0.001	5.00E-03	c	–	–	–	no
CFC-11	0	/	1	0	–	0.001	1.80E-01	n	–	–	–	no
CFC-12	0	/	1	0	–	0.001	1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	1	0	–	0.001	3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	1	0	–	0.001	NA	n	–	–	–	no
Chloroethane	0	/	1	0	–	0.001	2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	1	0	–	0.005	NA	n	–	–	–	no
Chloroform	0	/	1	0	–	0.001	8.00E-02	c	–	–	–	no
Chloromethane	0	/	1	0	–	0.001	6.70E-02	c	–	–	–	no
2-Chlorophenol	0	/	1	0	–	0.005	1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	1	0	–	0.001	NA	n	–	–	–	no
4-Chlorotoluene	0	/	1	0	–	0.001	NA	n	–	–	–	no
Cymene	0	/	1	0	–	0.001	NA	n	–	–	–	no
Dibenzofuran	0	/	1	0	–	0.005	NA	n	–	–	–	no
1,2-Dibromoethane	0	/	1	0	–	0.001	3.60E-03	c	–	–	–	no
Dibromomethane	0	/	1	0	–	0.001	9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	1	0	–	0.001	2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	1	0	–	0.001	8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	1	0	–	0.01	NA	c	–	–	–	no
1,1-Dichloroethane	0	/	1	0	–	0.001	2.20E+00	c	–	–	–	no
1,2-Dichloroethane	0	/	1	0	–	0.001	2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	0	/	1	0	–	0.001	1.90E-01	n	–	–	–	no
cis-1,2-Dichloroethene	0	/	1	0	–	0.001	2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	1	0	–	0.001	1.80E-01	n	–	–	–	no
Dichloromethane	0	/	1	0	–	0.005	5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	1	0	–	0.001	3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	1	0	–	0.001	NA	n	–	–	–	no
2,2-Dichloropropane	0	/	1	0	–	0.001	NA	n	–	–	–	no
1,1-Dichloropropene	0	/	1	0	–	0.001	NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	1	0	–	0.001	NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	1	0	–	0.001	NA	c	–	–	–	no

Table E.18-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Ethylbenzene	0	/	1	0	–	0.001		7.00E-01	c	–	–	–	no
Iodomethane	0	/	1	0	–	0.005		NA	n	–	–	–	no
Isopropylbenzene	0	/	1	0	–	0.001		8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/	1	0	–	0.001		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	1	0	–	0.005		NA	n	–	–	–	no
Methylbenzene	0	/	1	0	–	0.001		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	1	0	–	0.005		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	1	0	–	0.001		1.20E+02	c	–	–	–	no
Nitrobenzene	0	/	1	0	–	0.005		2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/	1	0	–	0.001		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/	1	0	–	0.001		8.90E+00	n	–	–	–	no
Tetrachloroethene	0	/	1	0	–	0.001		1.10E-02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	1	0	–	0.001		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	1	0	–	0.001		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	1	0	–	0.001		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/	1	0	–	0.001		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	1	0	–	0.005		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	1	0	–	0.001		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	1	0	–	0.005		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/	1	0	–	0.001		2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	1	0	–	0.001		2.50E-02	n	–	–	–	no
Trichloroethylene	0	/	1	0	–	0.001		5.00E-03	c	–	–	–	no
Vinyl chloride	0	/	1	0	–	0.001		2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	1	0	–	0.001		2.30E+01	n	–	–	–	no
o-Xylene	0	/	1	0	–	0.001		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds													
n-Nitrosodi-n-butylamine	0	/	1	0	–	0.005	^	1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	1	0	–	0.005		NA	n	–	–	–	no
Acenaphthylene	0	/	1	0	–	0.005		NA	n	–	–	–	no
Anthracene	0	/	1	0	–	0.005		NA	n	–	–	–	no
1-Chloronaphthalene	0	/	1	0	–	0.005		NA	n	–	–	–	no
2-Chloronaphthalene	0	/	1	0	–	0.005		NA	n	–	–	–	no
Fluorene	0	/	1	0	–	0.005		NA	n	–	–	–	no
1-Methylnaphthalene	0	/	1	0	–	0.005		NA	c	–	–	–	no
2-Methylnaphthalene	0	/	1	0	–	0.005		3.30E+00	n	–	–	–	no
Naphthalene	0	/	1	0	–	0.005		1.50E-01	c	–	–	–	no
Phenanthrene	0	/	1	0	–	0.005		NA	n	–	–	–	no
Total Maximum / Screening Level Ratios											NA	NA	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											NA	NA	

Target Organ Max/SL Ratios	
Kidney and Liver	NA
Brain	NA
Nasal	NA
Eyes	NA

Table E.18-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
						Skin		NA	
						Lungs		NA	
						Gastrointestinal Tract and Forestomach		NA	
						Whole Body		NA	
						Blood		NA	
						Nervous System		NA	
						Dental		NA	
						Red Blood Cells		NA	
						Glands		NA	
						Fetus		NA	
						Immune System		NA	
						Development		NA	
						Reproduction		NA	
						Bone		NA	
						Not Available/ Not Reported		NA	

Notes:

– = Not applicable.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max = Maximum concentration.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.18-HHRA-4
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	3.90E+00 m	–

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.18-HHRA-5
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
67641	3.90E+03	Acetone

ENTER Average soil temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
				Totals must add up to value of L_t (cell G45)					
16.7	15	305	0	305			SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
SIL	1.55	0.440	0.26	0.0015					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.18-HHRA--6
Intercalculations
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	2.62E+04	1.65E+00	2.71E-03	4.20E+06	8.35E-05	2.19E+00

Table E.18-HHRA-7

Estimates of Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Acetone	3.90E+00	m	2.19E+00

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

$\mu g/m^3$ Micrograms per cubic meter.
mg/kg Milligrams per kilogram.
m Maximum.

[a] EPCs are presented in Table E.18-HHRA-4.
[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.18-HHRA-8
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	2.19E+00	m	NA	NA	–	3.1E+01	1E-05	100%
			Total ELCR	NA		Total HI	0.00001	100%

[a] From Table E.18-HHRA-7.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.18-HHRA-9
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	2.19E+00	m	NA	NA	–	3.1E+01	7E-05	100%
			Total ELCR	NA		Total HI	0.00007	100%

[a] From Table E.18-HHRA-7.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.18-HHRA-10
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Units 151 and 152 (SWMUs 151 and 152)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Excess Lifetime Cancer Risk and Total non-cancer Hazard Index

RECEPTOR Exposure Medium - Scenario	Calculation Table	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor			
Vapor Migration to Indoor Air		NC	0.00001
TOTAL SITE RISKS:		NC	0.00001
Hypothetical Future Child and Adult Resident Receptor			
Vapor Migration to Indoor Air		NC	0.00007
TOTAL SITE RISKS:		NC	0.00007

NC None of the constituents of potential concern are classified as carcinogens.

Table E.18.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Volatile Organic Compounds													
Acetone	2	/	4	50	3.9	0.1		no	2.5	*R5*	2	**YES**	HQ > 1
Acrolein	0	/	4	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	4	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	4	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	4	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	4	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	4	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	4	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	4	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	4	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	4	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	4	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	4	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	4	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	4	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	4	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	4	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	4	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	4	0	–	0.3	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	4	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	4	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	4	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	4	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	4	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	4	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	4	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	4	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	4	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	4	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	4	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	4	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	4	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	4	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	4	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	4	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	4	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	4	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	4	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	4	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	4	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	4	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	4	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	4	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	4	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	4	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	4	0	–	0.02		no	3.36	*R5*	NA	no	ND

Table E.18.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
1,2,4-Trichlorobenzene	0	/	4	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	4	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	4	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	4	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	4	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	4	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	4	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	4	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	4	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	4	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	4	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	4	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	4	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	4	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	4	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	4	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	4	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	4	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	4	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	4	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	4	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	4	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	4	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	4	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	4	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	4	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	4	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	4	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	4	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	4	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	4	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	4	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	4	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	4	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	4	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	4	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	4	0	–	0.3		no	682	*R5*	NA	no	ND
Anthracene	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	4	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	4	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	4	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	4	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	4	0	–	0.3		no	4.73	*R5*	NA	no	ND

Table E.18.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
2-Chloronaphthalene	0	/	4	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	4	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	4	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	4	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	4	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pesticides													
Aldrin	0	/	2	0	–	0.0034	^	no	0.0025	*R4*	NA	no	ND
alpha-BHC	0	/	2	0	–	0.0034		no	0.0994	*R5*	NA	no	ND
beta-BHC	0	/	2	0	–	0.0034		no	0.00398	*R5*	NA	no	ND
Camphechlor	0	/	2	0	–	0.067		no	0.119	*R5*	NA	no	ND
Chlordane	0	/	2	0	–	0.034		no	0.224	*R5*	NA	no	ND
4,4-DDD	0	/	2	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDE	0	/	2	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
4,4-DDT	0	/	2	0	–	0.0067		no	0.021	*EcoSSL*	NA	no	ND
delta-BHC	0	/	2	0	–	0.0034		no	9.94	*R5*	NA	no	ND
Dieldrin	0	/	2	0	–	0.0067	^	no	0.0049	*EcoSSL*	NA	no	ND
Endosulfan I	0	/	2	0	–	0.0034		no	0.119	*R5*	NA	no	ND
Endosulfan II	0	/	2	0	–	0.0067		no	0.119	*R5*	NA	no	ND
Endosulfan sulfate	0	/	2	0	–	0.0067	^	no	0.00358	*R5*	NA	no	ND
Endrin	0	/	2	0	–	0.0067	^	no	0.001	*R4*	NA	no	ND
Endrin aldehyde	0	/	2	0	–	0.0067		no	0.0105	*R5*	NA	no	ND
gamma-BHC	0	/	2	0	–	0.0034		no	0.005	*R5*	NA	no	ND
Heptachlor	0	/	2	0	–	0.0034		no	0.00598	*R5*	NA	no	ND
Heptachlor epoxide	0	/	2	0	–	0.0034		no	0.152	*R5*	NA	no	ND
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-et	0	/	2	0	–	0.034	^	no	0.0199	*R5*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	2	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	2	0	–	13		no	10,000	*API*	NA	no	ND
Polychlorinated Biphenyls													
Aroclor 1221	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1232	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1242	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1254	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor 1260	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1016	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Aroclor-1248	0	/	2	0	–	0.034	^	no	0.02	*R4*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	4	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	1	/	4	25	0.94	0.5		YES	18	*EcoSSL*	0.05	no	≤ BKGD
Barium	0	/	4	0	–	110		no	330	*EcoSSL*	NA	no	ND
Cadmium	0	/	4	0	–	2.7	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	0	/	4	0	–	27	^	no	11	*EcoSSL*	NA	no	ND
Mercury	0	/	4	0	–	0.1		no	0.1	*R4*	NA	no	ND

Table E.18.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Selenium	0	/	4	0	–	0.5		no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	4	0	–	5.4	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.18.ERA-2
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Volatile Organic Compounds								
Acetone	3.9	m	2.5	*R5*	2	**YES**	**HQ > 1**	no

Notes:

BERA = Baseline Ecological Risk Assessment.

mg/kg = Milligrams per kilogram.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.

[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.

[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.

[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.

[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.19.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Volatile Organic Compounds									
Acetone	0 - 1	0	–	–	0.1	0.1	–	0.05	–
Acrolein	0 - 1	0	–	–	0.2	0.2	–	0.1	–
Acrylonitrile	0 - 1	0	–	–	0.1	0.1	–	0.05	–
Benzene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Bis(2-chloroethyl)ether	0 - 1	0	–	–	0.3	0.3	–	0.15	–
Bis(2-chloroisopropyl)ether	0 - 1	0	–	–	0.3	0.3	–	0.15	–
Bromomethane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
2-Butanone	0 - 1	0	–	–	0.1	0.1	–	0.05	–
Carbon disulfide	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Carbon tetrachloride	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
CFC-11	0 - 1	0	–	–	0.01	0.01	–	0.005	–
CFC-12	0 - 1	0	–	–	0.02	0.02	–	0.01	–
Chlorobenzene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Chlorodibromomethane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Chloroethane	0 - 1	0	–	–	0.01	0.01	–	0.005	–
2-Chloroethyl vinyl ether	0 - 1	0	–	–	0.01	0.01	–	0.005	–
Chloroform	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Chloromethane	0 - 1	0	–	–	0.01	0.01	–	0.005	–
2-Chlorophenol	0 - 1	0	–	–	0.33	0.33	–	0.165	–
Dibromomethane	0 - 1	0	–	–	0.02	0.02	–	0.01	–
1,2-Dichlorobenzene	0 - 1	0	–	–	0.3	0.3	–	0.15	–
1,4-Dichlorobenzene	0 - 1	0	–	–	0.3	0.3	–	0.15	–
1,4 Dichloro-2-butene	0 - 1	0	–	–	0.02	0.02	–	0.01	–
1,1-Dichloroethane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
1,2-Dichloroethane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
1,1-Dichloroethylene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
trans-1,2-Dichloroethene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Dichloromethane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
1,2-Dichloropropane	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
cis-1,3-Dichloropropene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
trans-1,3-Dichloropropene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Ethanol	0 - 1	0	–	–	1	1	–	0.5	–
Ethyl methacrylate	0 - 1	0	–	–	0.02	0.02	–	0.01	–
Ethylbenzene	0 - 1	0	–	–	0.005	0.005	–	0.0025	–
Iodomethane	0 - 1	0	–	–	0.02	0.02	–	0.01	–
m-Dichlorobenzene	0 - 1	0	–	–	0.3	0.3	–	0.15	–

Table E.19.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Methyl n-butyl ketone	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Methylbenzene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
4-Methyl-2-pentanone (MIBK)	0	-	1	0	–	-	–	0.05	-	0.05	–	0.025	–
Nitrobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Styrene (monomer)	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Tetrachloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2,2-Tetrachloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,1-Trichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,1,2-Trichloroethane	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	1	0	–	-	–	0.02	-	0.02	–	0.01	–
1,2,4-Trichlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Trichloroethylene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Vinyl acetate	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Vinyl chloride	0	-	1	0	–	-	–	0.01	-	0.01	–	0.005	–
Xylenes	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–
Semi Volatile Organic Compounds													
Benzidine	0	-	1	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	1	0	–	-	–	2	-	2	–	1	–
Benzyl butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-chloroethoxy)methane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Bis(2-ethylhexyl)phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Bromophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Chloro-3-methylphenol	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
4-Chlorophenyl phenyl ether	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,3'-Dichlorobenzidine	0	-	1	0	–	-	–	0.7	-	0.7	–	0.35	–
2,4-Dichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Diethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dimethylphenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4-Dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-butyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Di-n-octyl phthalate	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloro-1,3-butadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorobenzene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachlorocyclopentadiene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Hexachloroethane	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Methanamine, n-methyl-n-nitroso	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–

Table E.19.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
2-Methyl-4,6-dinitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
4-Nitrophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Nitrosodiphenylamine	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pentachlorophenol	0	-	1	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2,4,6-Trichlorophenol	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Acenaphthylene	0	-	1	0	–	-	–	0.33	-	0.33	–	0.165	–
Anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(a)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(b)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(g,h,i)perylene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Benzo(k)fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
1,2-Benzphenanthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
2-Chloronaphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Dibenz(a,h)anthracene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluoranthene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Fluorene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Indeno(1,2,3-cd)pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Naphthalene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Phenanthrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Pyrene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Total Petroleum Hydrocarbons (TPH)	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Explosives													
2,6-Dinitrotoluene	0	-	1	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Arsenic	0	-	1	0	–	-	–	0.55	-	0.55	–	0.275	–
Barium	0	-	1	0	–	-	–	99	-	99	–	49.5	–
Cadmium	0	-	1	0	–	-	–	2.5	-	2.5	–	1.25	–
Lead	0	-	1	0	–	-	–	25	-	25	–	12.5	–
Mercury	0	-	1	0	–	-	–	0.08	-	0.08	–	0.04	–

Table E.19.Data-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)			
Selenium	0 - 1	0	–	–	0.55	0.55	–	0.275	–
Silver	0 - 1	0	–	–	5	5	–	2.5	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.19.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Volatile Organic Compounds													
Acetone	0	-	18	0	–	-	–	0.1	-	0.2	–	0.0725	–
Acrolein	0	-	3	0	–	-	–	0.2	-	0.2	–	0.1	–
Acrylonitrile	0	-	3	0	–	-	–	0.1	-	0.1	–	0.05	–
Benzene	1	-	18	5.56	0.0093	-	0.0093	0.005	-	0.072	HCF-SW300(5/3/1993)	0.0124	–
Bis(2-chloroethyl)ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bis(2-chloroisopropyl)ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bromobenzene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Bromodichloromethane	0	-	9	0	–	-	–	0.005	-	0.033	–	0.00444	–
Bromomethane	0	-	18	0	–	-	–	0.005	-	0.067	–	0.0119	–
2-Butanone	0	-	18	0	–	-	–	0.1	-	1	–	0.16	–
n-Butylbenzene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
sec-Butylbenzene	1	-	6	16.7	0.095	-	0.095	0.05	-	0.05	DRW-02(11/2/1994)	0.0367	–
tert-Butylbenzene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Carbon disulfide	0	-	12	0	–	-	–	0.005	-	0.022	–	0.0035	–
Carbon tetrachloride	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0105	–
CFC-11	0	-	10	0	–	-	–	0.01	-	0.05	–	0.0186	–
CFC-12	0	-	9	0	–	-	–	0.02	-	0.25	–	0.0867	–
Chlorinated fluorocarbon (Freon 113)	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Chlorobenzene	0	-	18	0	–	-	–	0.005	-	0.05	–	0.011	–
Chlorodibromomethane	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0111	–
Chloroethane	0	-	18	0	–	-	–	0.01	-	0.096	–	0.0144	–
2-Chloroethyl vinyl ether	0	-	18	0	–	-	–	0.01	-	0.5	–	0.0886	–
Chloroform	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0111	–
Chloromethane	0	-	7	0	–	-	–	0.01	-	0.01	–	0.005	–
2-Chlorophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.188	–
2-Chlorotoluene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
4-Chlorotoluene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Cymene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Dibenzofuran	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2-Dibromoethane	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
Dibromomethane	0	-	9	0	–	-	–	0.02	-	0.05	–	0.02	–
1,2-Dichlorobenzene	0	-	14	0	–	-	–	0.039	-	0.5	–	0.105	–
1,4-Dichlorobenzene	0	-	14	0	–	-	–	0.041	-	0.5	–	0.105	–
1,4 Dichloro-2-butene	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
1,1-Dichloroethane	1	-	18	5.56	0.044	-	0.044	0.005	-	0.05	HCF-SW300(5/3/1993)	0.0135	–

Table E.19.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
1,2-Dichloroethane	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0111	–
1,1-Dichloroethylene	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0113	–
cis-1,2-Dichloroethene	0	-	15	0	–	-	–	0.005	-	0.05	–	0.0128	–
trans-1,2-Dichloroethene	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0113	–
Dichloromethane	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0126	–
1,2-Dichloropropane	0	-	18	0	–	-	–	0.005	-	0.067	–	0.0119	–
1,3-Dichloropropane	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
2,2-Dichloropropane	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
1,1-Dichloropropene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
cis-1,3-Dichloropropene	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0113	–
trans-1,3-Dichloropropene	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0106	–
Diethyl ether	0	-	6	0	–	-	–	0.2	-	0.2	–	0.1	–
Ethanol	0	-	3	0	–	-	–	1	-	1	–	0.5	–
Ethyl methacrylate	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
Ethylbenzene	1	-	18	5.56	0.38	-	0.38	0.005	-	0.05	HCF-SW300(5/3/1993)	0.0323	–
Iodomethane	0	-	3	0	–	-	–	0.02	-	0.02	–	0.01	–
Isopropylbenzene	1	-	6	16.7	0.65	-	0.65	0.05	-	0.05	DRW-02(11/2/1994)	0.129	–
m-Dichlorobenzene	0	-	14	0	–	-	–	0.024	-	0.5	–	0.104	–
Methyl n-butyl ketone	0	-	18	0	–	-	–	0.05	-	0.2	–	0.0538	–
Methylbenzene	0	-	18	0	–	-	–	0.005	-	0.058	–	0.0117	–
4-Methyl-2-pentanone (MIBK)	0	-	18	0	–	-	–	0.05	-	0.2	–	0.0546	–
Methyl tert-butyl ether (MTBE)	0	-	10	0	–	-	–	0.006	-	0.2	–	0.0614	–
Nitrobenzene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
n-Propylbenzene	1	-	6	16.7	0.12	-	0.12	0.05	-	0.05	DRW-02(11/2/1994)	0.0408	–
Styrene (monomer)	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0113	–
Tetrachloroethene	0	-	8	0	–	-	–	0.005	-	0.077	–	0.007	–
1,1,1,2-Tetrachloroethane	0	-	7	0	–	-	–	0.05	-	0.053	–	0.0252	–
1,1,2,2-Tetrachloroethane	0	-	17	0	–	-	–	0.005	-	0.05	–	0.0106	–
1,1,1-Trichloroethane	0	-	18	0	–	-	–	0.005	-	0.05	–	0.0105	–
1,1,2-Trichloroethane	0	-	18	0	–	-	–	0.005	-	0.053	–	0.0115	–
1,2,3-Trichlorobenzene	0	-	6	0	–	-	–	0.05	-	0.05	–	0.025	–
1,2,3-Trichloropropane	0	-	9	0	–	-	–	0.02	-	0.05	–	0.02	–
1,2,4-Trichlorobenzene	0	-	13	0	–	-	–	0.05	-	0.5	–	0.112	–
1,2,4-Trimethylbenzene	1	-	6	16.7	0.74	-	0.74	0.05	-	0.05	DRW-02(11/2/1994)	0.144	–
1,3,5-Trimethylbenzene	1	-	6	16.7	0.851	-	0.851	0.05	-	0.05	DRW-02(11/2/1994)	0.163	–
Trichloroethylene	0	-	8	0	–	-	–	0.005	-	0.11	–	0.00906	–
Vinyl acetate	0	-	12	0	–	-	–	0.01	-	0.067	–	0.00788	–
Vinyl chloride	0	-	18	0	–	-	–	0.01	-	0.1	–	0.0145	–

Table E.19.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
m,p-Xylene	0	-	7	0	–	-	–	0.05	-	0.077	–	0.0269	–
o-Xylene	0	-	7	0	–	-	–	0.039	-	0.05	–	0.0242	–
Xylenes	1	-	11	9.09	0.05	-	0.05	0.005	-	0.007	HCF-SW300(5/3/1993)	0.00714	–
Semi Volatile Organic Compounds													
Benzidine	0	-	3	0	–	-	–	1.7	-	1.7	–	0.85	–
Benzoic acid	0	-	7	0	–	-	–	2	-	2	–	1	–
Benzyl alcohol	0	-	4	0	–	-	–	0.8	-	0.9	–	0.438	–
Benzyl butyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bis(2-chloroethoxy)methane	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Bis(2-ethylhexyl)phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
4-Bromophenyl phenyl ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
p-Chloroaniline	0	-	4	0	–	-	–	0.8	-	0.9	–	0.438	–
4-Chloro-3-methylphenol	0	-	7	0	–	-	–	0.7	-	0.9	–	0.4	–
4-Chlorophenyl phenyl ether	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
3,3'-Dichlorobenzidine	0	-	7	0	–	-	–	0.7	-	0.9	–	0.4	–
2,4-Dichlorophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Diethyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2,4-Dimethylphenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2,4-Dinitrophenol	0	-	7	0	–	-	–	2	-	2	–	1	–
2,4-Dinitrotoluene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Dimethyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Di-n-butyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Di-n-octyl phthalate	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachloro-1,3-butadiene	0	-	13	0	–	-	–	0.2	-	0.5	–	0.146	–
Hexachlorobenzene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachlorocyclopentadiene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Hexachloroethane	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Methanamine, n-methyl-n-nitroso	0	-	3	0	–	-	–	0.33	-	0.33	–	0.165	–
2-Methyl-4,6-dinitrophenol	0	-	7	0	–	-	–	1.7	-	2	–	0.979	–
2-Methylphenol	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
4-Methylphenol	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
2-Nitroaniline	0	-	4	0	–	-	–	2	-	2	–	1	–
3-Nitroaniline	0	-	4	0	–	-	–	2	-	2	–	1	–
p-Nitroaniline	0	-	4	0	–	-	–	2	-	2	–	1	–
2-Nitrophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
4-Nitrophenol	0	-	7	0	–	-	–	2	-	2	–	1	–
n-Nitrosodi-n-propylamine	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
n-Nitrosodiphenylamine	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–

Table E.19.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
n-Nitrosodiphenylamine & diphenylamine	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
Pentachlorophenol	0	-	7	0	–	-	–	2	-	2	–	1	–
Phenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Tribromomethane	0	-	15	0	–	-	–	0.005	-	0.063	–	0.0137	–
2,4,5-Trichlorophenol	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
2,4,6-Trichlorophenol	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Acenaphthylene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.188	–
Anthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(a)anthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(a)pyrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(b)fluoranthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(g,h,i)perylene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Benzo(k)fluoranthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
1,2-Benzphenanthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2-Chloronaphthalene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Dibenz(a,h)anthracene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Fluoranthene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Fluorene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Indeno(1,2,3-cd)pyrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
2-Methylnaphthalene	0	-	4	0	–	-	–	0.4	-	0.5	–	0.213	–
Naphthalene	0	-	13	0	–	-	–	0.05	-	0.5	–	0.112	–
Phenanthrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Pyrene	0	-	7	0	–	-	–	0.3	-	0.5	–	0.186	–
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	1	-	13	7.69	2600	-	2600	10	-	71	HCF-01(3/28/1990)	212	–
Petroleum hydrocarbons	1	-	3	33.3	55	-	55	10	-	13	HMW-10(4/16/1992)	22.2	–
Total Petroleum Hydrocarbons (TPH)	5	-	36	13.9	55	-	11000	10	-	40	HCF-SW300(5/3/1993)	526	1158
Explosives													
2,6-Dinitrotoluene	0	-	3	0	–	-	–	0.3	-	0.3	–	0.15	–
Inorganics													
Aluminum	1	-	1	100	4700	-	4700	–	-	–	HCF-02(3/24/1992)	4700	–
Antimony	3	-	7	42.9	0.68	-	0.98	0.5	-	12	DRW-03(11/4/1994)	1.3	–
Arsenic	6	-	18	33.3	0.063	-	2.1	0.46	-	2	WSW-300(4/29/1993)	0.555	0.665
Barium	2	-	15	13.3	44	-	71	10	-	100	HCF-SW300(5/3/1993)	46.6	–
Beryllium	0	-	7	0	–	-	–	1	-	2.5	–	1.14	–

Table E.19.Data-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)			
Cadmium	0	-	18	0	–	-	–	0.62	-	2.7	–	1.13	–
Calcium metal	1	-	1	100	160000	-	160000	–	-	–	HCF-02(3/24/1992)	160000	–
Chromium	1	-	15	6.67	7	-	7	0.01	-	7.3	DRW-06(11/8/1994)	2.42	–
Cobalt	0	-	1	0	–	-	–	10	-	10	–	5	–
Copper	6	-	7	85.7	4.5	-	7	5	-	5	DRW-05(11/6/1994),DRW-06(11/8/1994)	5.21	–
Cyanide (Total)	0	-	4	0	–	-	–	0.17	-	0.2	–	0.0925	–
Iron	1	-	1	100	3800	-	3800	–	-	–	HCF-02(3/24/1992)	3800	–
Lead	9	-	18	50	1.2	-	30	0.57	-	25	DRW-03(11/4/1994)	10.8	14.6
Magnesium	1	-	1	100	4700	-	4700	–	-	–	HCF-02(3/24/1992)	4700	–
Manganese	1	-	1	100	80	-	80	–	-	–	HCF-02(3/24/1992)	80	–
Mercury	0	-	17	0	–	-	–	0.02	-	0.5	–	0.101	–
Molybdenum	0	-	1	0	–	-	–	13	-	13	–	6.5	–
Nickel	6	-	7	85.7	5.8	-	10	8	-	8	DRW-06(11/8/1994)	7.16	–
Potassium	1	-	1	100	1100	-	1100	–	-	–	HCF-02(3/24/1992)	1100	–
Selenium	0	-	18	0	–	-	–	0.46	-	60	–	1.92	–
Silver	0	-	8	0	–	-	–	1.2	-	5	–	1.99	–
Sodium	1	-	1	100	590	-	590	–	-	–	HCF-02(3/24/1992)	590	–
Thallium	0	-	7	0	–	-	–	0.5	-	60	–	4.5	–
Titanium	1	-	1	100	100	-	100	–	-	–	HCF-02(3/24/1992)	100	–
Vanadium	1	-	1	100	21	-	21	–	-	–	HCF-02(3/24/1992)	21	–
Zinc	7	-	7	100	9	-	27	–	-	–	HCF-02(3/24/1992)	13.9	–

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Volatile Organic Compounds														
Acetone	23	-	170	13.5	0.01	-	15	0.0039	-	2	DRW-02(11/2/1994)	0.325	1.058	Y
Acetonitrile	0	-	2	0	–	-	–	0.65	-	0.67	–	0.33	–	Y
Acetophenone	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	Y
Acrolein	0	-	27	0	–	-	–	0.2	-	0.67	–	0.117	–	Y
Acrylonitrile	0	-	52	0	–	-	–	0.01	-	0.2	–	0.0381	–	Y
Allyl chloride	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Benzene	31	-	170	18.2	0.0051	-	1.4	0.0015	-	0.2	DRW-02(11/2/1994)	0.0384	0.0751	Y
Bis(2-chloroethyl)ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	Y
Bis(2-chloroisopropyl)ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	Y
Bromobenzene	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
Bromodichloromethane	0	-	122	0	–	-	–	0.00069	-	0.625	–	0.0122	–	Y
Bromomethane	4	-	171	2.34	0.02	-	0.14	0.0014	-	1.25	HCF-NE100(6/2/1992),HCF-NE100(6/2/1992)	0.031	–	Y
2-Butanone	23	-	170	13.5	0.0095	-	2.2	0.0018	-	1	DRW-01(11/1/1994)	0.161	0.106	Y
tert-Butyl alcohol	0	-	25	0	–	-	–	0.2	-	4	–	0.48	–	Y
n-Butylbenzene	10	-	58	17.2	0.158	-	5.5	0.0052	-	0.2	DRW-02(11/2/1994)	0.309	0.655	Y
sec-Butylbenzene	13	-	58	22.4	0.051	-	6.1	0.0052	-	0.2	DRW-02(11/2/1994)	0.306	0.544	Y
tert-Butylbenzene	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
Carbon disulfide	3	-	137	2.19	0.0015	-	0.068	0.00045	-	0.2	HCF-02(4/8/1992),HCF-03(4/8/1992)	0.00885	–	Y
Carbon tetrachloride	0	-	171	0	–	-	–	0.00036	-	0.625	–	0.0115	–	Y
CFC-11	1	-	134	0.746	0.0066	-	0.0066	0.00087	-	0.625	HCF-S100(1/23/1992)	0.0163	–	Y
CFC-12	0	-	85	0	–	-	–	0.01	-	0.25	–	0.0465	–	Y
Chlorinated fluorocarbon (Freon 113)	1	-	26	3.85	0.17	-	0.17	0.05	-	6.25	HCF-02(3/24/1992)	0.15	–	Y
Chlorobenzene	0	-	171	0	–	-	–	0.00069	-	0.625	–	0.0126	–	Y
Chlorobromomethane	0	-	34	0	–	-	–	0.0052	-	0.2	–	0.0188	–	Y
2-Chlor-1,3-butadiene	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Chlorodibromomethane	2	-	171	1.17	0.0026	-	0.0028	0.00081	-	0.625	HCF-W100(3/3/1992)	0.013	–	N
Chloroethane	2	-	171	1.17	0.007	-	0.0077	0.002	-	1.25	SE-100(1/24/1992)	0.0203	–	Y
2-Chloroethyl vinyl ether	0	-	159	0	–	-	–	0.0014	-	1.25	–	0.0681	–	Y
Chloroform	0	-	171	0	–	-	–	0.00078	-	0.625	–	0.0129	–	Y
Chloromethane	2	-	100	2	0.0026	-	0.046	0.00057	-	0.2	N100(6/22/1992)	0.0109	–	Y
2-Chlorophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.336	–	Y
2-Chlorotoluene	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
4-Chlorotoluene	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
Cymene	7	-	58	12.1	0.347	-	11	0.0052	-	0.2	DRW-02(11/2/1994)	0.397	1.059	Y
Dibenzofuran	12	-	40	30	0.17	-	5.3	0.25	-	2	CFW-02(5/20/1993)	0.809	1.172	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	60	0	–	-	–	0.0052	-	11	–	0.169	–	N

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
1,2-Dibromoethane	0	-	60	0	–	-	–	0.0052	-	0.2	–	0.0209	–	Y
Dibromomethane	0	-	85	0	–	-	–	0.0052	-	0.2	–	0.0178	–	Y
1,2-Dichlorobenzene	0	-	147	0	–	-	–	0.00081	-	4	–	0.0996	–	Y
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	-	1	0	–	-	–	0.625	-	0.625	–	0.313	–	Y
1,4-Dichlorobenzene	0	-	148	0	–	-	–	0.00084	-	4	–	0.101	–	Y
1,4 Dichloro-2-butene	0	-	27	0	–	-	–	0.02	-	0.027	–	0.0102	–	Y
trans-1,4-Dichlorobutene	0	-	25	0	–	-	–	0.1	-	2	–	0.24	–	Y
1,1-Dichloroethane	12	-	171	7.02	0.0069	-	0.095	0.00087	-	1.25	142B3(6/10/1992)	0.0175	0.0109	Y
1,2-Dichloroethane	1	-	171	0.585	0.044	-	0.044	0.00036	-	0.625	HCF-W100(3/3/1992)	0.0132	–	Y
1,1-Dichloroethylene	3	-	171	1.75	0.01	-	0.048	0.00096	-	0.625	CFW-03(5/18/1993)	0.0138	–	Y
1,2-Dichloroethene	0	-	1	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
cis-1,2-Dichloroethene	0	-	142	0	–	-	–	0.00075	-	0.2	–	0.0127	–	Y
trans-1,2-Dichloroethene	0	-	170	0	–	-	–	0.00093	-	0.625	–	0.0135	–	Y
Dichloromethane	10	-	171	5.85	0.0027	-	0.069	0.00093	-	1.25	HCF-02(3/24/1992)	0.0312	0.00837	Y
1,2-Dichloropropane	0	-	171	0	–	-	–	0.0014	-	0.625	–	0.0149	–	Y
1,3-Dichloropropane	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
2,2-Dichloropropane	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
1,1-Dichloropropene	0	-	58	0	–	-	–	0.0052	-	0.2	–	0.0214	–	Y
cis-1,3-Dichloropropene	0	-	170	0	–	-	–	0.00096	-	0.2	–	0.0117	–	Y
trans-1,3-Dichloropropene	0	-	171	0	–	-	–	0.00039	-	0.625	–	0.0116	–	Y
Diethyl ether	0	-	24	0	–	-	–	0.2	-	0.2	–	0.1	–	Y
Ethanol	0	-	25	0	–	-	–	1	-	1	–	0.5	–	N
Ethyl methacrylate	0	-	27	0	–	-	–	0.02	-	11	–	0.25	–	Y
Ethylbenzene	40	-	170	23.5	0.0052	-	5.7	0.00096	-	0.2	HCF-02(4/8/1992),HCF-03(4/8/1992)	0.248	0.353	Y
Iodomethane	0	-	52	0	–	-	–	0.02	-	1	–	0.063	–	Y
Isopropyl alcohol	0	-	25	0	–	-	–	0.2	-	4	–	0.48	–	N
Isopropylbenzene	13	-	58	22.4	0.0247	-	5	0.0052	-	0.2	DRW-02(11/2/1994)	0.204	0.371	Y
m-Dichlorobenzene	0	-	147	0	–	-	–	0.00048	-	4	–	0.0983	–	Y
Methyl methacrylate	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Methyl n-butyl ketone	0	-	169	0	–	-	–	0.0024	-	1	–	0.053	–	Y
Methylacrylonitrile	0	-	2	0	–	-	–	0.026	-	0.027	–	0.0133	–	Y
Methylbenzene	8	-	170	4.71	0.0039	-	0.075	0.0012	-	0.2	DRW-01(11/1/1994)	0.0132	0.00615	Y
2-Methyl-1-propanol	0	-	2	0	–	-	–	1.3	-	1.3	–	0.65	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	170	0	–	-	–	0.0032	-	1	–	0.0554	–	Y
Methyl tert-butyl ether (MTBE)	0	-	65	0	–	-	–	0.005	-	0.2	–	0.0471	–	Y
Nitrobenzene	0	-	53	0	–	-	–	0.25	-	4	–	0.222	–	Y
Propionitrile	0	-	2	0	–	-	–	0.13	-	0.13	–	0.065	–	Y
n-Propylbenzene	12	-	58	20.7	0.0261	-	7.8	0.0052	-	0.2	DRW-02(11/2/1994)	0.252	0.5	Y

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Styrene (monomer)	0	-	170	0	–	-	–	0.00093	-	0.2	–	0.0116	–	Y
Tetrachloroethene	3	-	108	2.78	0.025	-	0.099	0.0016	-	0.2	HCF-02(4/8/1992)	0.0163	–	Y
1,1,1,2-Tetrachloroethane	0	-	67	0	–	-	–	0.0052	-	0.2	–	0.0215	–	Y
1,1,2,2-Tetrachloroethane	1	-	164	0.61	0.0082	-	0.0082	0.0011	-	0.625	SE-100(1/24/1992)	0.0135	–	Y
1,1,1-Trichloroethane	25	-	171	14.6	0.00073	-	1.3	0.00036	-	0.625	N100(6/22/1992)	0.0395	0.0471	Y
1,1,2-Trichloroethane	0	-	171	0	–	-	–	0.0011	-	0.625	–	0.014	–	Y
1,2,3-Trichlorobenzene	2	-	49	4.08	0.07	-	0.07	0.05	-	1	DRW-01(11/1/1994),DRW-02(11/2/1994)	0.0753	–	Y
1,2,3-Trichloropropane	0	-	85	0	–	-	–	0.0052	-	0.2	–	0.0178	–	Y
1,2,4-Trichlorobenzene	0	-	99	0	–	-	–	0.0052	-	4	–	0.168	–	Y
1,2,4-Trimethylbenzene	11	-	58	19	0.068	-	32	0.0052	-	0.2	DRW-02(11/2/1994)	1.19	2.293	Y
1,3,5-Trimethylbenzene	8	-	60	13.3	0.0293	-	11	0.0052	-	11	DRW-02(11/2/1994)	0.527	0.832	Y
Trichloroethylene	0	-	108	0	–	-	–	0.0023	-	0.23	–	0.0186	–	Y
Vinyl acetate	0	-	112	0	–	-	–	0.0014	-	0.14	–	0.0109	–	Y
Vinyl chloride	2	-	171	1.17	0.21	-	0.21	0.0021	-	1.25	HCF-NE100(6/2/1992),HCF-NE100(6/2/1992)	0.0201	–	Y
m,p-Xylene	23	-	97	23.7	0.003	-	3.9	0.0016	-	0.2	DRW-01(11/1/1994)	0.21	0.308	Y
o-Xylene	30	-	97	30.9	0.0019	-	4.5	0.00081	-	0.2	HCF-NE100(6/2/1992)	0.243	0.719	Y
Xylenes	27	-	73	37	0.0059	-	7	0.005	-	0.05	142B3(6/10/1992)	0.249	0.925	Y
Semi Volatile Organic Compounds														
2-Acetylaminofluorene	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
4-Aminobiphenyl	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Aniline	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Benzidine	0	-	49	0	–	-	–	0.25	-	1.7	–	0.495	–	N
Benzoic acid	1	-	63	1.59	0.41	-	0.41	0.25	-	19	HLSF-SB-013(11/16/2006)	1.09	–	N
Benzyl alcohol	0	-	40	0	–	-	–	0.25	-	8	–	0.555	–	N
Benzyl butyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Bis(2-chloroethoxy)methane	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Bis(2-ethylhexyl)phthalate	1	-	65	1.54	0.045	-	0.045	0.25	-	4	CFW-02(5/20/1993)	0.241	–	N
4-Bromophenyl phenyl ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
2-Butoxy ethanol	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Chlordecone (Kepone)	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
p-Chloroaniline	0	-	40	0	–	-	–	0.25	-	8	–	0.555	–	N
Chlorobenzilate	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
4-Chloro-3-methylphenol	0	-	65	0	–	-	–	0.25	-	8	–	0.476	–	N
Chlorophenols	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
4-Chlorophenyl phenyl ether	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
m,p-Cresol	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Dibenz[a,,j]acridine	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
3,3'-Dichlorobenzidine	0	-	65	0	–	-	–	0.25	-	8	–	0.476	–	N

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
2,4-Dichlorophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
2,6-Dichlorophenol	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Diethyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
o,o-Diethyl o-pyrazinyl phosphorothioate	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
4-Dimethylaminoazobenzene	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
3,3'-Dimethylbenzidine	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
2,4-Dimethylphenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
2,4-Dinitrophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
2,4-Dinitrotoluene	0	-	54	0	–	-	–	0.25	-	4	–	0.236	–	N
a,a-Dimethylphenethylamine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Dimethyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Di-n-butyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
m-Dinitrobenzene	0	-	1	0	–	-	–	4	-	4	–	2	–	N
Di-n-octyl phthalate	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
1,4-Dioxane	0	-	27	0	–	-	–	0.5	-	10	–	1.14	–	N
Diphenylamine	2	-	26	7.69	0.578	-	1.63	0.25	-	2	HLSF-SB-019(11/13/2006)	0.237	–	N
Diphenylhydrazine	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	N
Ethyl methanesulfonate	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Famphur	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Hexachloro-1,3-butadiene	0	-	99	0	–	-	–	0.0052	-	4	–	0.186	–	N
Hexachlorobenzene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Hexachlorocyclopentadiene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Hexachloroethane	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Hexachlorophene (HCP)	0	-	2	0	–	-	–	9	-	44	–	13.3	–	N
Hexachloropropene	0	-	2	0	–	-	–	4	-	22	–	6.5	–	N
Isodrin	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Isosafrole	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	Y
Methanamine, n-methyl-n-nitroso	0	-	51	0	–	-	–	0.25	-	11	–	0.267	–	N
Methapyrilene	0	-	2	0	–	-	–	9	-	44	–	13.3	–	N
2-Methyl-4,6-dinitrophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
Methyl methanesulfonate	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
Methyl parathion	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
2-Methylphenol	0	-	40	0	–	-	–	0.25	-	4	–	0.303	–	N
3-Methylphenol	0	-	2	0	–	-	–	0.4	-	2	–	0.6	–	N
4-Methylphenol	0	-	16	0	–	-	–	0.4	-	4	–	0.569	–	N
2-Methyl pyridine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
1,4-Naphthoquinone	0	-	2	0	–	-	–	9	-	44	–	13.3	–	N
1-Naphthylamine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
2-Naphthylamine	0	-	26	0	–	-	–	0.25	-	11	–	0.365	–	N
2-Nitroaniline	0	-	40	0	–	-	–	0.25	-	19	–	1.25	–	N
3-Nitroaniline	0	-	40	0	–	-	–	0.25	-	19	–	1.25	–	N
p-Nitroaniline	0	-	40	0	–	-	–	0.25	-	19	–	1.25	–	N
2-Nitrophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
4-Nitrophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
4-Nitroquinoline-n-oxide	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
n-Nitrosodiethylamine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
n-Nitrosodi-n-butylamine	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	Y
n-Nitrosodi-n-propylamine	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
n-Nitrosodiphenylamine	2	-	27	7.41	0.12	-	2.5	0.3	-	0.3	CFW-03(5/18/1993)	0.236	–	N
n-Nitrosodiphenylamine & diphenylamine	5	-	14	35.7	2.8	-	9.4	0.4	-	2	CFW-02(5/20/1993)	2.56	5.373	N
n-Nitrosomethyl-ethylamine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
n-Nitrosomorpholine	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
n-Nitrosopiperidine	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
n-Nitrosopyrrolidine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
5-Nitro-o-toluidine	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Pentachlorobenzene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Pentachloroethane	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Pentachlorophenol	0	-	65	0	–	-	–	0.25	-	19	–	1.15	–	N
Phenacetin	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Phenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
p-Phenylenediamine	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Propyzamide	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Pyridine	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Safrole	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
1,2,4,5-Tetrachlorobenzene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Tribromomethane	0	-	146	0	–	-	–	0.0013	-	0.625	–	0.0167	–	N
2,4,5-Trichlorophenol	0	-	40	0	–	-	–	0.25	-	4	–	0.303	–	N
2,4,6-Trichlorophenol	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
o,o,o-Triethyl phosphorothioate	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	Y
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	9	-	65	13.8	0.08	-	3.1	0.25	-	4	HLSF-SB-011(11/16/2006)	0.381	0.405	Y
Acenaphthylene	0	-	65	0	–	-	–	0.25	-	4	–	0.336	–	Y
Anthracene	9	-	65	13.8	0.46	-	10.6	0.25	-	4	HLSF-SB-011(11/16/2006)	0.632	1.173	Y
Benzo(a)anthracene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Benzo(a)pyrene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Benzo(b)fluoranthene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Benzo(g,h,i)perylene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
Benzo(k)fluoranthene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
1,2-Benzphenanthracene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
1-Chloronaphthalene	0	-	24	0	–	-	–	0.25	-	0.25	–	0.125	–	Y
2-Chloronaphthalene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	Y
Dibenz(a,h)anthracene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
7,12-Dimethylbenz(a)anthracene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Fluoranthene	1	-	65	1.54	0.23	-	0.23	0.25	-	4	CFW-02(5/20/1993)	0.232	–	N
Fluorene	19	-	65	29.2	0.16	-	6.38	0.25	-	2	HLSF-SB-011(11/16/2006)	0.851	1.16	Y
Indeno(1,2,3-cd)pyrene	0	-	65	0	–	-	–	0.25	-	4	–	0.244	–	N
3-Methylchloranthrene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
1-Methylnaphthalene	7	-	24	29.2	0.302	-	55.8	0.25	-	0.25	HLSF-SB-011(11/16/2006)	4.67	9.173	Y
2-Methylnaphthalene	15	-	40	37.5	0.698	-	71.3	0.25	-	0.5	HLSF-SB-011(11/16/2006)	8.13	12.88	Y
Naphthalene	29	-	99	29.3	0.14	-	10	0.0052	-	2	CFW-02(5/20/1993)	1.26	1.713	Y
Phenanthrene	21	-	65	32.3	0.38	-	18	0.25	-	0.5	CFW-02(5/20/1993)	2.01	3.031	Y
Pyrene	6	-	65	9.23	0.27	-	1.42	0.25	-	4	HLSF-SB-011(11/16/2006)	0.253	0.346	N
Pesticides														
Aramite	0	-	2	0	–	-	–	4	-	22	–	6.5	–	N
Cygon	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Diallate	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Disulfoton	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Parathion	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Pentachloronitrobenzene	0	-	26	0	–	-	–	0.25	-	4	–	0.21	–	N
Phorate	0	-	2	0	–	-	–	2	-	11	–	3.25	–	N
Sulfotep	0	-	2	0	–	-	–	0.9	-	4	–	1.23	–	N
Total Petroleum Hydrocarbons (TPH)														
>C10-C28	29	-	59	49.2	21	-	18000	10	-	71	DRW-02(11/2/1994)	2320	3202	N
Diesel Range Organics (DRO)	9	-	25	36	178	-	10800	50	-	50	HLSF-SB-011(11/16/2006)	1430	2571	N
Gasoline Range Organics (GRO)	10	-	25	40	1.6	-	386	1	-	1	HLSF-SB-011(11/16/2006)	47.4	81.61	N
Petroleum hydrocarbons	15	-	25	60	34	-	9100	10	-	13	142B3(6/10/1992)	2110	3204	N
Total Petroleum Hydrocarbons (TPH)	65	-	157	41.4	15	-	28000	0.48	-	40	WSW-300(4/29/1993)	1230	1691	N
Explosives														
2,6-Dinitrotoluene	0	-	55	0	–	-	–	0.25	-	4	–	0.25	–	N
Inorganics														
Aluminum	47	-	47	100	2200	-	27000	–	-	–	SE-100(1/24/1992)	9660	11493	N
Antimony	9	-	73	12.3	0.53	-	24	0.5	-	24	N100(6/22/1992)	4.85	3.527	N
Arsenic	87	-	138	63	0.063	-	35	0.43	-	64	HCF-01(3/28/1990)	5.12	3.347	N

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/kg)	-	Max (mg/kg)	Min (mg/kg)	-	Max (mg/kg)				
Barium	76	-	126	60.3	3	-	1000	0.05	-	110	CFW-03(5/18/1993)	66.9	83.24	N
Beryllium	1	-	72	1.39	0.28	-	0.28	0.59	-	2.5	N200(6/23/1992)	0.765	–	N
Cadmium	6	-	138	4.35	0.25	-	2	0.38	-	2.7	HCF-01(3/28/1990)	0.74	0.372	N
Calcium metal	47	-	47	100	849	-	200000	–	-	–	[e]	65600	92779	N
Chromium	87	-	137	63.5	1	-	19	0.01	-	7.3	HCF-S100(1/22/1992)	5.34	6.182	N
Chromium (Hexavalent)	1	-	35	2.86	5.21	-	5.21	0.01	-	5	HLSF-SB-015(11/2/2006)	1.8	–	N
Cobalt	1	-	48	2.08	2.3	-	2.3	5.9	-	20	N200(6/23/1992)	5.21	–	N
Copper	48	-	73	65.8	2.5	-	19	5	-	10	HCF-NE100(6/2/1992)	6.56	7.71	N
Cyanide (Total)	3	-	16	18.8	0.2	-	0.53	0.15	-	0.2	CFW-02(5/20/1993)	0.145	–	N
Fluoride	10	-	10	100	2.8	-	19	–	-	–	HCF-S100(1/22/1992)	11	13.68	N
Iron	47	-	47	100	1700	-	22000	–	-	–	HCF-S100(1/22/1992)	8860	10266	N
Lead	114	-	162	70.4	0.75	-	65	0.1	-	44	HCF-S100(1/22/1992)	9.72	10.17	N
Magnesium	47	-	47	100	1100	-	17000	–	-	–	HCF-S100(1/22/1992)	5120	5903	N
Manganese	47	-	47	100	35	-	540	–	-	–	HCF-SW100(3/23/1992)	127	150.4	N
Mercury	0	-	92	0	–	-	–	0.02	-	0.5	–	0.0851	–	N
Molybdenum	1	-	46	2.17	25	-	25	13	-	26	HCF-NE100(6/2/1992)	7.33	–	N
Nickel	37	-	73	50.7	4.1	-	19	8	-	16	CFW-03(5/18/1993)	6.32	7.602	N
Nitrate + Nitrite	16	-	20	80	0.156	-	44.9	0.1	-	0.1	HLSF-SB-021(11/15/2006)	6.82	17.66	N
Phosphorus	24	-	24	100	13.8	-	284	–	-	–	HLSF-SB-021(11/15/2006)	132	158.7	N
Potassium	42	-	47	89.4	520	-	6100	400	-	2000	SE-100(1/24/1992)	2080	2420	N
Selenium	4	-	138	2.9	0.8	-	75	0.3	-	120	HCF-01(3/28/1990)	6.56	–	N
Silver	3	-	82	3.66	2.3	-	5.4	0.76	-	5.5	HCF-02(4/8/1992)	1.19	–	N
Sodium	65	-	71	91.5	357	-	4110	1000	-	2000	HLSF-SB-021(11/15/2006)	1080	1227	N
Sulfide	2	-	2	100	73	-	91	–	-	–	CFW-02(5/20/1993)	82	–	N
Thallium	0	-	73	0	–	-	–	0.5	-	120	–	11.1	–	N
Tin	0	-	2	0	–	-	–	12	-	12	–	6	–	N
Titanium	46	-	46	100	58	-	260	–	-	–	HCF-02(4/8/1992),HCF-03(4/8/1992)	161	174.8	N
Vanadium	45	-	49	91.8	12	-	160	10	-	20	CFW-03(5/18/1993)	29.7	44.55	N
Zinc	95	-	97	97.9	3.61	-	54	8	-	8	HCF-S100(1/22/1992)	19.5	21.29	N
Other														
Chloride	10	-	10	100	31	-	880	–	-	–	SE-100(1/24/1992)	209	420.4	N

Notes:

– = Not analyzed/ not applicable.

mg/kg = Milligrams per kilogram.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

Table E.19.Data-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]		Detects		Sample Quantitation Limit		Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples	FOD %	Min (mg/kg)	Max (mg/kg)	Min (mg/kg)	Max (mg/kg)				

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.
[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.
[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.
[e] Maximum locations for calcium metal include: HCF-02(3/24/1992), HCF-02(4/8/1992), HCF-03(4/8/1992),and HCF-S100(1/22/1992).

Table E.19.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Volatile Organic Compounds														
Acetone	0	-	78	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
Acetophenone	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
Acrylonitrile	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Benzene	32	-	78	41	0.00111	-	0.0602	0.001	-	0.001	DRW-02(8/18/2004)	0.00881	0.0123	Y
Bis(2-chloroethyl)ether	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
Bis(2-chloroisopropyl)ether	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
Bromobenzene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromodichloromethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Bromomethane	0	-	78	0	–	-	–	0.001	-	0.005	–	0.00188	–	Y
2-Butanone	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
tert-Butyl alcohol	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
n-Butylbenzene	7	-	78	8.97	0.00125	-	0.01	0.001	-	0.001	DRW-02(9/4/2008)	0.000791	0.00172	Y
sec-Butylbenzene	15	-	78	19.2	0.00115	-	0.0103	0.001	-	0.001	DRW-01(3/4/2004)	0.00123	0.00209	Y
tert-Butylbenzene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Carbon disulfide	1	-	78	1.28	0.00935	-	0.00935	0.001	-	0.001	HCF-07(3/4/2004)	0.000613	–	Y
Carbon tetrachloride	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-11	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
CFC-12	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobenzene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorobromomethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Chlorodibromomethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
Chloroethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2-Chloroethyl vinyl ether	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Chloroform	24	-	78	30.8	0.00103	-	0.00395	0.001	-	0.001	DRW-11	0.00102	0.00153	Y
Chloromethane	3	-	78	3.85	0.00308	-	0.00373	0.001	-	0.001	DRW-12(8/18/2005)	0.000612	–	Y
2-Chlorophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
2-Chlorotoluene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
4-Chlorotoluene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Cymene	5	-	78	6.41	0.00319	-	0.0146	0.001	-	0.001	DRW-02(9/4/2008)	0.00091	0.00371	Y
Dibenzofuran	15	-	78	19.2	0.0072	-	0.0285	0.005	-	5	DRW-02(9/4/2008)	0.453	0.00939	Y
1,2-Dibromo-3-chloropropane (DBCP)	0	-	78	0	–	-	–	0.002	-	0.005	–	0.00204	–	N
1,2-Dibromoethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dibromomethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2-Dichlorobenzene	0	-	78	0	–	-	–	0.001	-	5	–	0.129	–	Y
1,4-Dichlorobenzene	0	-	78	0	–	-	–	0.001	-	5	–	0.129	–	Y
trans-1,4-Dichlorobutene	0	-	78	0	–	-	–	0.01	-	0.01	–	0.005	–	Y
1,1-Dichloroethane	50	-	78	64.1	0.00104	-	0.125	0.001	-	0.001	DRW-04(8/12/2004)	0.0201	0.0259	Y

Table E.19.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
1,2-Dichloroethane	1	-	78	1.28	0.00136	-	0.00136	0.001	-	0.001	HCF-03(9/8/2008)	0.000511	–	Y
1,1-Dichloroethylene	4	-	78	5.13	0.00148	-	0.00356	0.001	-	0.001	DRW-04(8/12/2004)	0.000591	–	Y
cis-1,2-Dichloroethene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,2-Dichloroethene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Dichloromethane	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2-Dichloropropane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,3-Dichloropropane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
2,2-Dichloropropane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1-Dichloropropene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
cis-1,3-Dichloropropene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
trans-1,3-Dichloropropene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Ethylbenzene	7	-	78	8.97	0.00175	-	0.0156	0.001	-	0.001	DRW-01(3/4/2004)	0.00111	0.00267	Y
Iodomethane	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Isopropyl alcohol	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Isopropylbenzene	18	-	78	23.1	0.00153	-	0.0192	0.001	-	0.001	DRW-02(9/4/2008)	0.00199	0.00342	Y
m-Dichlorobenzene	0	-	78	0	–	-	–	0.001	-	5	–	0.129	–	Y
Methyl n-butyl ketone	0	-	78	0	–	-	–	0.001	-	0.005	–	0.00188	–	Y
Methylbenzene	1	-	78	1.28	0.00592	-	0.00592	0.001	-	0.001	HMW-13(8/11/2005)	0.000569	–	Y
4-Methyl-2-pentanone (MIBK)	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
Methyl tert-butyl ether (MTBE)	16	-	78	20.5	0.00123	-	0.0104	0.001	-	0.001	DRW-01(8/17/2004)	0.00143	0.00252	Y
Nitrobenzene	2	-	78	2.56	0.00919	-	0.0195	0.0005	-	5	DRW-05(9/27/2007)	0.579	–	Y
n-Propylbenzene	9	-	78	11.5	0.00116	-	0.014	0.001	-	0.001	DRW-01(3/4/2004)	0.00119	0.00222	Y
Styrene (monomer)	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
Tetrachloroethene	1	-	78	1.28	0.00244	-	0.00244	0.001	-	0.001	DRW-08(2/23/2006)	0.000525	–	Y
1,1,1,2-Tetrachloroethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,2,2-Tetrachloroethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,1,1-Trichloroethane	8	-	78	10.3	0.00118	-	0.00183	0.001	-	0.001	DRW-08(5/5/2005)	0.000606	0.00124	Y
1,1,2-Trichloroethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,3-Trichlorobenzene	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,3-Trichloropropane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
1,2,4-Trichlorobenzene	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	Y
1,2,4-Trimethylbenzene	19	-	78	24.4	0.00113	-	0.0955	0.001	-	0.001	HCF-07(3/4/2004)	0.00811	0.0122	Y
1,3,5-Trimethylbenzene	10	-	78	12.8	0.00144	-	0.0276	0.001	-	0.001	HCF-07(3/4/2004)	0.00184	0.0035	Y
Trichloroethylene	17	-	78	21.8	0.00115	-	0.0399	0.001	-	0.001	HMW-13(8/11/2005)	0.00221	0.00373	Y
Vinyl chloride	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
m,p-Xylene	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	Y
o-Xylene	3	-	78	3.85	0.00239	-	0.0173	0.001	-	0.001	DRW-02(9/4/2008)	0.000795	–	Y
Semi Volatile Organic Compounds														
4-Aminobiphenyl	2	-	78	2.56	0.0108	-	0.0161	0.005	-	5	HCF-03(4/22/2008)	0.707	–	N

Table E.19.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Aniline	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Benzidine	0	-	78	0	–	-	–	0.01	-	15	–	2.12	–	N
Benzoic acid	0	-	78	0	–	-	–	0.005	-	20	–	2.82	–	N
Benzyl alcohol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Benzyl butyl phthalate	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Bis(2-chloroethoxy)methane	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Bis(2-ethylhexyl)phthalate	2	-	78	2.56	0.0145	-	0.0204	0.005	-	10	DRW-02(4/21/2008)	1.42	–	N
4-Bromophenyl phenyl ether	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2-Butoxy ethanol	0	-	9	0	–	-	–	0.005	-	0.025	–	0.00361	–	N
p-Chloroaniline	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
4-Chloro-3-methylphenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Chlorophenols	0	-	78	0	–	-	–	0.005	-	5	–	0.709	–	N
4-Chlorophenyl phenyl ether	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
m,p-Cresol	2	-	61	3.28	0.0056	-	0.0067	0.005	-	5	HCF-03(8/23/2005)	0.453	–	N
Dibenz[a,,j]acridine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
3,3'-Dichlorobenzidine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2,4-Dichlorophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2,6-Dichlorophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.709	–	N
Diethyl phthalate	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
4-Dimethylaminoazobenzene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2,4-Dimethylphenol	1	-	78	1.28	0.0199	-	0.0199	0.005	-	5	HCF-03(5/18/2005)	0.707	–	N
2,4-Dinitrophenol	1	-	78	1.28	0.0108	-	0.0108	0.005	-	20	DRW-05(3/2/2006)	2.82	–	N
2,4-Dinitrotoluene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
a,a-Dimethylphenethylamine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Dimethyl phthalate	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Di-n-butyl phthalate	1	-	78	1.28	0.00583	-	0.00583	0.005	-	5	HCF-02(10/4/2007)	0.707	–	N
m-Dinitrobenzene	0	-	67	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Di-n-octyl phthalate	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
1,4-Dioxane	0	-	9	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Diphenylamine	5	-	78	6.41	0.00747	-	1.02	0.005	-	5	HCF-05(3/4/2004)	0.69	0.113	N
Diphenylhydrazine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Ethyl methanesulfonate	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Hexachloro-1,3-butadiene	0	-	78	0	–	-	–	0.005	-	0.005	–	0.0025	–	N
Hexachlorobenzene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Hexachlorocyclopentadiene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Hexachloroethane	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Methanamine, n-methyl-n-nitroso	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2-Methyl-4,6-dinitrophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Methyl methanesulfonate	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N

Table E.19.Data-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
2-Methylphenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
3-Methylphenol	0	-	17	0	–	-	–	0.005	-	5	–	1.62	–	N
4-Methylphenol	0	-	17	0	–	-	–	0.005	-	5	–	1.62	–	N
2-Methyl pyridine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
1-Naphthylamine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2-Naphthylamine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2-Nitroaniline	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
3-Nitroaniline	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
p-Nitroaniline	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2-Nitrophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
4-Nitrophenol	0	-	78	0	–	-	–	0.025	-	5	–	0.715	–	N
n-Nitrosodi-n-butylamine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
n-Nitrosodi-n-propylamine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
n-Nitrosopiperidine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Pentachlorobenzene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Pentachlorophenol	1	-	78	1.28	0.00938	-	0.00938	0.005	-	5	HMW-13(2/9/2004)	0.677	–	N
Phenacetin	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Phenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Propyzamide	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Pyridine	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
1,2,4,5-Tetrachlorobenzene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Tribromomethane	0	-	78	0	–	-	–	0.001	-	0.001	–	0.0005	–	N
2,4,5-Trichlorophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2,4,6-Trichlorophenol	0	-	78	0	–	-	–	0.005	-	5	–	0.709	–	N
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
1,3,5-Trinitrobenzene	0	-	67	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	13	-	78	16.7	0.00571	-	0.76	0.005	-	5	HCF-05(3/4/2004)	0.528	0.0515	Y
Acenaphthylene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
Anthracene	9	-	78	11.5	0.00754	-	0.316	0.005	-	5	HCF-07(8/17/2004)	0.623	0.035	Y
Benzo(a)anthracene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Benzo(a)pyrene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Benzo(b)fluoranthene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Benzo(g,h,i)perylene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Benzo(k)fluoranthene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
1,2-Benzphenanthracene	1	-	78	1.28	0.115	-	0.115	0.005	-	5	HCF-07(8/17/2004)	0.676	–	N
1-Chloronaphthalene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
2-Chloronaphthalene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	Y
Dibenz(a,h)anthracene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N

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Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
7,12-Dimethylbenz(a)anthracene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Fluoranthene	1	-	78	1.28	0.00597	-	0.00597	0.005	-	5	DRW-02(9/4/2008)	0.707	–	N
Fluorene	15	-	78	19.2	0.00517	-	1.4	0.005	-	5	HCF-05(3/4/2004)	0.476	0.0826	Y
Indeno(1,2,3-cd)pyrene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
3-Methylchloranthrene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
1-Methylnaphthalene	24	-	78	30.8	0.00564	-	26.6	0.005	-	5	HCF-07(8/17/2004)	0.778	2.116	Y
2-Methylnaphthalene	23	-	78	29.5	0.00746	-	26.3	0.005	-	5	HCF-07(8/17/2004)	0.845	2.192	Y
Naphthalene	22	-	78	28.2	0.00588	-	1.76	0.005	-	0.005	HCF-05	0.05	0.116	Y
Phenanthrene	16	-	78	20.5	0.00545	-	3.75	0.005	-	5	HCF-07(8/17/2004)	0.416	0.547	Y
Pyrene	8	-	78	10.3	0.0097	-	0.378	0.005	-	5	HCF-05(3/4/2004)	0.621	0.0455	N
Pesticides														
Pentachloronitrobenzene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
Total Petroleum Hydrocarbons (TPH)														
Diesel Range Organics (DRO)	15	-	78	19.2	8.66	-	523	5	-	50	DRW-02(9/4/2008)	47.7	95.75	N
Gasoline Range Organics (GRO)	21	-	78	26.9	0.111	-	3.73	0.1	-	0.1	HCF-03(10/9/2007)	0.257	0.402	N
Explosives														
2-Amino-4,6-dinitrotoluene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-2,6-dinitrotoluene	0	-	9	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
4-Amino-dnt / 2-Amino-dnt	2	-	60	3.33	0.00137	-	0.0185	0.0005	-	0.0005	HCF-03(4/22/2008)	0.000573	–	N
2,6-Dinitrotoluene	0	-	78	0	–	-	–	0.005	-	5	–	0.707	–	N
2,6-DNT / 2,4-DNT	3	-	58	5.17	0.00535	-	0.0513	0.0005	-	0.0005	HCF-03	0.00165	–	N
2-Nitrotoluene	3	-	67	4.48	0.0124	-	0.329	0.0005	-	0.0005	HCF-03(10/9/2007)	0.00564	–	N
3-Nitrotoluene	1	-	67	1.49	0.0563	-	0.0563	0.0005	-	0.0005	HCF-07(8/17/2004)	0.00109	–	N
4-Nitrotoluene	0	-	67	0	–	-	–	0.0005	-	0.0005	–	0.00025	–	N
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocin	9	-	67	13.4	0.00287	-	5.79	0.0005	-	0.0005	DRW-03	0.141	0.304	N
RDX	3	-	67	4.48	0.0749	-	0.234	0.0005	-	0.0005	DRW-01(8/17/2004)	0.00611	–	N
Tetryl	1	-	67	1.49	0.012	-	0.012	0.0005	-	0.0005	HCF-03(4/22/2008)	0.000425	–	N
2,4,6-Trinitrotoluene	3	-	67	4.48	0.00331	-	0.0546	0.0005	-	0.0005	HCF-07(8/17/2004)	0.00161	–	N
Inorganics														
Aluminum	13	-	52	25	0.055	-	49.6	0.03	-	0.1	DRW-02(3/5/2004)	1.07	5.37	N
Ammonia	9	-	61	14.8	1.01	-	1.85	1	-	1	HMW-13(4/8/2005)	0.604	1.075	N
Antimony	0	-	17	0	–	-	–	0.02	-	0.05	–	0.0179	–	N
Arsenic	10	-	70	14.3	0.011	-	0.364	0.005	-	0.01	DRW-03(8/12/2004)	0.0211	0.0404	N
Barium	50	-	70	71.4	0.008	-	2.81	0.01	-	0.1	HCF-03	0.0815	0.256	N
Beryllium	11	-	69	15.9	0.003	-	0.009	0.002	-	0.0025	HMW-13(2/22/2006)	0.00183	0.00367	N
Boron	52	-	52	100	1.76	-	9.61	–	-	–	DRW-04(8/12/2004)	5.7	6.243	N
Cadmium	9	-	78	11.5	0.001	-	0.007	0.001	-	0.005	HMW-13(2/22/2006)	0.00118	0.00147	N
Calcium metal	12	-	12	100	115	-	607	–	-	–	DRW-12(9/13/2006)	382	625.2	N
Chromium	47	-	78	60.3	0.005	-	1.57	0.005	-	0.01	DRW-12(8/18/2005)	0.158	0.394	N

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Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average	Upper Confidence Limit on the Mean [c]	VOC [d] (YES/no)
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)				
Chromium (Hexavalent)	12	-	40	30	0.0325	-	0.57	0.01	-	0.01	DRW-13(8/18/2005)	0.0333	0.0794	N
Cobalt	15	-	69	21.7	0.006	-	0.058	0.002	-	0.02	DRW-02(3/5/2004)	0.0089	0.01251	N
Copper	39	-	78	50	0.005	-	0.144	0.005	-	0.0125	DRW-12(3/6/2006)	0.0189	0.0258	N
Cyanide (Total)	0	-	18	0	–	-	–	0.01	-	0.01	–	0.005	–	N
Fluoride	64	-	78	82.1	0.235	-	12.5	0.2	-	0.2	DRW-02(9/4/2008)	2.66	3.117	N
Iron	48	-	52	92.3	0.012	-	63.1	0.01	-	0.05	DRW-02(3/5/2004)	3.33	11.34	N
Lead	1	-	78	1.28	0.039	-	0.039	0.005	-	0.01	DRW-02(3/5/2004)	0.00393	–	N
Lithium	13	-	13	100	0.056	-	1.78	–	-	–	DRW-12(8/9/2004)	0.422	0.723	N
Magnesium	12	-	12	100	380	-	1730	–	-	–	DRW-12(3/6/2006)	692	1304	N
Manganese	43	-	52	82.7	0.01	-	1.25	0.005	-	0.025	DRW-01(8/17/2004)	0.289	0.374	N
Mercury	1	-	70	1.43	0.0003	-	0.0003	0.0002	-	0.0002	DRW-04(3/5/2004)	0.000103	–	N
Molybdenum	44	-	52	84.6	0.054	-	0.852	0.05	-	0.05	DRW-03	0.208	0.258	N
Nickel	54	-	69	78.3	0.006	-	3.45	0.005	-	0.025	DRW-12(3/6/2006)	0.301	0.807	N
Nitrate	47	-	59	79.7	0.37	-	220	0.1	-	0.5	DRW-06(1/10/2007)	37.7	68.61	N
Nitrate + Nitrite	15	-	19	78.9	0.206	-	1620	0.1	-	0.1	DRW-08(8/11/2008)	144	532.6	N
Phosphorus	24	-	60	40	0.052	-	1.3	0.05	-	0.05	DRW-02(3/5/2004)	0.0802	0.138	N
Potassium	12	-	12	100	53.3	-	217	–	-	–	DRW-12(3/6/2006)	113	136.4	N
Selenium	25	-	70	35.7	0.025	-	0.285	0.01	-	0.05	DRW-12(8/18/2005)	0.0451	0.0677	N
Silver	0	-	78	0	–	-	–	0.002	-	0.0125	–	0.0022	–	N
Sodium	21	-	21	100	246	-	7470	–	-	–	DRW-06(1/10/2007)	3050	4061	N
Strontium	52	-	52	100	2.78	-	18.5	–	-	–	DRW-12(5/17/2005)	8.02	9.08	N
Sulfate	78	-	78	100	72.6	-	14400	–	-	–	DRW-12(9/13/2006)	5290	6962	N
Thallium	0	-	17	0	–	-	–	0.02	-	0.05	–	0.0215	–	N
Tin	4	-	69	5.8	0.026	-	0.18	0.025	-	0.1	DRW-13(8/11/2004)	0.0189	–	N
Vanadium	46	-	69	66.7	0.005	-	0.162	0.005	-	0.025	DRW-03	0.0258	0.032	N
Zinc	34	-	78	43.6	0.005	-	0.278	0.005	-	0.025	DRW-02(3/5/2004)	0.0184	0.0271	N
Other														
Bromide	34	-	70	48.6	0.52	-	3.86	0.2	-	1	HMW-10(1/11/2007)	0.755	1.143	N
Chloride	78	-	78	100	102	-	6680	–	-	–	DRW-12(9/13/2006)	1440	2246	N

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

[d] Only constituents identified as volatile (VOC) will be evaluated for the vapor intrusion pathway.

Table E.19-HHRA-1
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentration
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Site Screening Level (SL) [c] Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Volatile Organic Compounds																			
Acetone	0	/	1	0	–	0.1	–	6.75E+04	n	8.51E+05	n	–	–	–	–	–	–	no	no
Acrolein	0	/	1	0	–	0.2	–	6.46E-01	n	2.06E+00	n	–	–	–	–	–	–	no	no
Acrylonitrile	0	/	1	0	–	0.1	–	5.97E+00	c	3.14E+01	c	–	–	–	–	–	–	no	no
Benzene	0	/	1	0	–	0.005	–	1.55E+01	c	8.54E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroethyl)ether	0	/	1	0	–	0.3	–	2.10E+00	c	1.00E+01	c	–	–	–	–	–	–	no	no
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.3	–	9.15E+01	c	4.54E+02	c	–	–	–	–	–	–	no	no
Bromomethane	0	/	1	0	–	0.005	–	2.23E+01	n	8.36E+01	n	–	–	–	–	–	–	no	no
2-Butanone	0	/	1	0	–	0.1	–	3.96E+04	n	3.69E+05	n	–	–	–	–	–	–	no	no
Carbon disulfide	0	/	1	0	–	0.005	–	1.94E+03	n	7.54E+03	n	–	–	–	–	–	–	no	no
Carbon tetrachloride	0	/	1	0	–	0.005	–	4.38E+00	c	2.43E+01	c	–	–	–	–	–	–	no	no
CFC-11	0	/	1	0	–	0.01	–	2.01E+03	n	6.76E+03	n	–	–	–	–	–	–	no	no
CFC-12	0	/	1	0	–	0.02	–	4.81E+02	n	1.55E+03	n	–	–	–	–	–	–	no	no
Chlorobenzene	0	/	1	0	–	0.005	–	5.08E+02	n	2.14E+03	n	–	–	–	–	–	–	no	no
Chlorodibromomethane	0	/	1	0	–	0.005	–	1.19E+01	c	6.13E+01	c	–	–	–	–	–	–	no	no
Chloroethane	0	/	1	0	–	0.01	–	4.36E+04	n	1.37E+05	n	–	–	–	–	–	–	no	no
2-Chloroethyl vinyl ether	0	/	1	0	–	0.01	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Chloroform	0	/	1	0	–	0.005	–	5.72E+00	c	3.19E+01	c	–	–	–	–	–	–	no	no
Chloromethane	0	/	1	0	–	0.01	–	3.56E+01	c	1.98E+02	c	–	–	–	–	–	–	no	no
2-Chlorophenol	0	/	1	0	–	0.33	–	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Dibromomethane	0	/	1	0	–	0.02	–	7.82E+02	n	1.14E+04	n	–	–	–	–	–	–	no	no
1,2-Dichlorobenzene	0	/	1	0	–	0.3	–	3.01E+03	n	1.43E+04	n	–	–	–	–	–	–	no	no
1,4-Dichlorobenzene	0	/	1	0	–	0.3	–	3.22E+01	c	1.80E+02	c	–	–	–	–	–	–	no	no
1,4 Dichloro-2-butene	0	/	1	0	–	0.02	–	4.60E-02	c	2.58E-01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethane	0	/	1	0	–	0.005	–	6.29E+01	c	3.50E+02	c	–	–	–	–	–	–	no	no
1,2-Dichloroethane	0	/	1	0	–	0.005	–	7.74E+00	c	4.28E+01	c	–	–	–	–	–	–	no	no
1,1-Dichloroethylene	0	/	1	0	–	0.005	–	6.18E+02	n	2.22E+03	n	–	–	–	–	–	–	no	no
trans-1,2-Dichloroethene	0	/	1	0	–	0.005	–	2.73E+02	n	9.95E+02	n	–	–	–	–	–	–	no	no
Dichloromethane	0	/	1	0	–	0.005	–	1.99E+02	c	1.09E+03	c	–	–	–	–	–	–	no	no
1,2-Dichloropropane	0	/	1	0	–	0.005	–	1.47E+01	c	8.17E+01	c	–	–	–	–	–	–	no	no
cis-1,3-Dichloropropene	0	/	1	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
trans-1,3-Dichloropropene	0	/	1	0	–	0.005	–	2.35E+01	c	1.26E+02	c	–	–	–	–	–	–	no	no
Ethanol	0	/	1	0	–	1	–	NA	n	NA	n	–	–	–	–	–	–	no	no
Ethyl methacrylate	0	/	1	0	–	0.02	–	7.04E+03	n	1.02E+05	n	–	–	–	–	–	–	no	no
Ethylbenzene	0	/	1	0	–	0.005	–	6.97E+01	c	3.85E+02	c	–	–	–	–	–	–	no	no
Iodomethane	0	/	1	0	–	0.02	–	1.30E+01	n	6.58E+01	n	–	–	–	–	–	–	no	no
m-Dichlorobenzene	0	/	1	0	–	0.3	–	2.35E+03	n	3.41E+04	n	–	–	–	–	–	–	no	no
Methyl n-butyl ketone	0	/	1	0	–	0.05	–	2.10E+02	n	1.40E+03	n	–	–	–	–	–	–	no	no
Methylbenzene	0	/	1	0	–	0.005	–	5.57E+03	n	5.79E+04	n	–	–	–	–	–	–	no	no
4-Methyl-2-pentanone (MIBK)	0	/	1	0	–	0.05	–	5.30E+03	n	5.30E+04	n	–	–	–	–	–	–	no	no
Nitrobenzene	0	/	1	0	–	0.3	–	4.94E+01	c	2.77E+02	c	–	–	–	–	–	–	no	no
Styrene (monomer)	0	/	1	0	–	0.005	–	8.97E+03	n	5.12E+04	n	–	–	–	–	–	–	no	no
Tetrachloroethene	0	/	1	0	–	0.005	–	6.99E+00	c	3.64E+01	c	–	–	–	–	–	–	no	no
1,1,2,2-Tetrachloroethane	0	/	1	0	–	0.005	–	7.98E+00	c	4.33E+01	c	–	–	–	–	–	–	no	no
1,1,1-Trichloroethane	0	/	1	0	–	0.005	–	2.18E+04	n	7.71E+04	n	–	–	–	–	–	–	no	no
1,1,2-Trichloroethane	0	/	1	0	–	0.005	–	1.72E+01	c	9.43E+01	c	–	–	–	–	–	–	no	no
1,2,3-Trichloropropane	0	/	1	0	–	0.02	–	9.15E-01	c	4.54E+00	c	–	–	–	–	–	–	no	no
1,2,4-Trichlorobenzene	0	/	1	0	–	0.3	–	1.43E+02	n	5.25E+02	n	–	–	–	–	–	–	no	no
Trichloroethylene	0	/	1	0	–	0.005	–	4.57E+01	c	2.53E+02	c	–	–	–	–	–	–	no	no
Vinyl acetate	0	/	1	0	–	0.01	–	3.65E+03	n	1.19E+04	n	–	–	–	–	–	–	no	no
Vinyl chloride	0	/	1	0	–	0.01	–	8.65E-01	c	2.59E+01	c	–	–	–	–	–	–	no	no
Xylenes	0	/	1	0	–	0.005	–	1.09E+03	n	3.61E+03	n	–	–	–	–	–	–	no	no
Semi Volatile Organic Compounds																			
Benzidine	0	/	1	0	–	1.7 ^	–	2.11E-02	c	8.33E-02	c	–	–	–	–	–	–	no	no
Benzoic acid	0	/	1	0	–	2	–	2.40E+05	n	2.50E+06	n	–	–	–	–	–	–	no	no
Benzyl butyl phthalate	0	/	1	0	–	0.3	–	2.60E+03	c	9.10E+03	c	–	–	–	–	–	–	no	no
Bis(2-chloroethoxy)methane	0	/	1	0	–	0.3	–	1.80E+02	n	1.80E+03	n	–	–	–	–	–	–	no	no

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Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)		Industrial Scenario (mg/kg)		Is Maximum > Screening Level? Residential Scenario	Industrial Scenario	Residential Scenario Max / SL (cancer)	Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Industrial
Bis(2-ethylhexyl)phthalate	0 / 1	0	–	0.3	–	3.47E+02	c	1.37E+03	c	–	–	–	–	–	–	no	no
4-Bromophenyl phenyl ether	0 / 1	0	–	0.3	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Chloro-3-methylphenol	0 / 1	0	–	0.7	–	6.10E+03	n	6.20E+04	n	–	–	–	–	–	–	no	no
4-Chlorophenyl phenyl ether	0 / 1	0	–	0.3	–	NA	n	NA	n	–	–	–	–	–	–	no	no
3,3'-Dichlorobenzidine	0 / 1	0	–	0.7	–	1.10E+01	c	3.80E+01	c	–	–	–	–	–	–	no	no
2,4-Dichlorophenol	0 / 1	0	–	0.3	–	1.83E+02	n	2.05E+03	n	–	–	–	–	–	–	no	no
Diethyl phthalate	0 / 1	0	–	0.3	–	4.89E+04	n	5.47E+05	n	–	–	–	–	–	–	no	no
2,4-Dimethylphenol	0 / 1	0	–	0.3	–	1.22E+03	n	1.37E+04	n	–	–	–	–	–	–	no	no
2,4-Dinitrophenol	0 / 1	0	–	2	–	1.22E+02	n	1.37E+03	n	–	–	–	–	–	–	no	no
2,4-Dinitrotoluene	0 / 1	0	–	0.3	–	1.57E+01	c	1.03E+02	c	–	–	–	–	–	–	no	no
Dimethyl phthalate	0 / 1	0	–	0.3	–	6.11E+05	n	6.84E+06	n	–	–	–	–	–	–	no	no
Di-n-butyl phthalate	0 / 1	0	–	0.3	–	6.11E+03	n	6.84E+04	n	–	–	–	–	–	–	no	no
Di-n-octyl phthalate	0 / 1	0	–	0.3	–	2.44E+03	n	2.74E+04	n	–	–	–	–	–	–	no	no
Hexachloro-1,3-butadiene	0 / 1	0	–	0.3	–	6.11E+01	c	2.46E+02	c	–	–	–	–	–	–	no	no
Hexachlorobenzene	0 / 1	0	–	0.3	–	3.04E+00	c	1.20E+01	c	–	–	–	–	–	–	no	no
Hexachlorocyclopentadiene	0 / 1	0	–	0.3	–	3.67E+02	n	4.10E+03	n	–	–	–	–	–	–	no	no
Hexachloroethane	0 / 1	0	–	0.3	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
Methanamine, n-methyl-n-nitroso	0 / 1	0	–	0.33 ^	–	9.54E-02	c	3.76E-01	c	–	–	–	–	–	–	no	no
2-Methyl-4,6-dinitrophenol	0 / 1	0	–	2	–	6.10E+00	n	6.20E+01	n	–	–	–	–	–	–	no	no
2-Nitrophenol	0 / 1	0	–	0.3	–	NA	n	NA	n	–	–	–	–	–	–	no	no
4-Nitrophenol	0 / 1	0	–	2	–	NA	n	NA	n	–	–	–	–	–	–	no	no
n-Nitrosodi-n-propylamine	0 / 1	0	–	0.3	–	6.90E-01	c	2.50E+00	c	–	–	–	–	–	–	no	no
n-Nitrosodiphenylamine	0 / 1	0	–	0.3	–	9.93E+02	c	3.91E+03	c	–	–	–	–	–	–	no	no
Pentachlorophenol	0 / 1	0	–	2	–	2.98E+01	c	1.00E+02	c	–	–	–	–	–	–	no	no
Phenol	0 / 1	0	–	0.3	–	1.83E+04	n	2.05E+05	n	–	–	–	–	–	–	no	no
2,4,6-Trichlorophenol	0 / 1	0	–	0.3	–	6.11E+01	n	6.84E+02	n	–	–	–	–	–	–	no	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0 / 1	0	–	0.3	–	5.12E+03	c	2.02E+04	c	–	–	–	–	–	–	no	no
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	0 / 1	0	–	0.3	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Acenaphthylene	0 / 1	0	–	0.33	–	3.44E+03	n	3.67E+04	n	–	–	–	–	–	–	no	no
Anthracene	0 / 1	0	–	0.3	–	1.72E+04	n	1.83E+05	n	–	–	–	–	–	–	no	no
Benzo(a)anthracene	0 / 1	0	–	0.3	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(a)pyrene	0 / 1	0	–	0.3	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Benzo(b)fluoranthene	0 / 1	0	–	0.3	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Benzo(g,h,i)perylene	0 / 1	0	–	0.3	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Benzo(k)fluoranthene	0 / 1	0	–	0.3	–	6.21E+01	c	2.34E+02	c	–	–	–	–	–	–	no	no
1,2-Benzphenanthracene	0 / 1	0	–	0.3	–	6.21E+02	c	2.34E+03	c	–	–	–	–	–	–	no	no
2-Chloronaphthalene	0 / 1	0	–	0.3	–	6.26E+03	n	9.08E+04	n	–	–	–	–	–	–	no	no
Dibenz(a,h)anthracene	0 / 1	0	–	0.3	–	6.21E-01	c	2.34E+00	c	–	–	–	–	–	–	no	no
Fluoranthene	0 / 1	0	–	0.3	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Fluorene	0 / 1	0	–	0.3	–	2.29E+03	n	2.44E+04	n	–	–	–	–	–	–	no	no
Indeno(1,2,3-cd)pyrene	0 / 1	0	–	0.3	–	6.21E+00	c	2.34E+01	c	–	–	–	–	–	–	no	no
Naphthalene	0 / 1	0	–	0.3	–	4.50E+01	c	2.52E+02	c	–	–	–	–	–	–	no	no
Phenanthrene	0 / 1	0	–	0.3	–	1.83E+03	n	2.05E+04	n	–	–	–	–	–	–	no	no
Pyrene	0 / 1	0	–	0.3	–	1.72E+03	n	1.83E+04	n	–	–	–	–	–	–	no	no
Total Petroleum Hydrocarbons (TPH)																	
Total Petroleum Hydrocarbons (TPH)	0 / 1	0	–	13	–	4.40E+02	n	8.90E+02	n	–	–	–	–	–	–	no	no
Explosives																	
2,6-Dinitrotoluene	0 / 1	0	–	0.3	–	6.12E+01	n	6.87E+02	n	–	–	–	–	–	–	no	no
Inorganics																	
Arsenic	0 / 1	0	–	0.55	YES	3.90E+00	c	1.77E+01	c	–	–	–	–	–	–	no	no
Barium	0 / 1	0	–	99	YES	1.56E+04	n	2.24E+05	n	–	–	–	–	–	–	no	no
Cadmium	0 / 1	0	–	2.5	no	7.79E+01	n	1.12E+03	n	–	–	–	–	–	–	no	no
Lead	0 / 1	0	–	25	no	4.00E+02	IEUBK	8.00E+02	IEUBK	–	–	–	–	–	–	no	no
Mercury	0 / 1	0	–	0.08	no	7.71E+00	n	4.99E+01	n	–	–	–	–	–	–	no	no
Selenium	0 / 1	0	–	0.55	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no
Silver	0 / 1	0	–	5	no	3.91E+02	n	5.68E+03	n	–	–	–	–	–	–	no	no

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Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Residential Scenario (mg/kg)	Site Screening Level (SL) [c] Industrial Scenario (mg/kg)	Is Maximum > Screening Level? Residential Scenario	Is Maximum > Screening Level? Industrial Scenario	Residential Scenario Max / SL (cancer)	Residential Scenario Max / SL (noncancer)	Industrial Scenario Max / SL (cancer)	Industrial Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Residential	Constituent of Potential Concern (COPC)? [d] Industrial
Total Maximum / Screening Level Ratios										NA	NA	NA	NA		
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)										NA	NA	NA	NA		
							Target Organ Max/SL Ratios								
							Kidney and Liver				NA		NA		
							Brain				NA		NA		
							Nasal				NA		NA		
							Eyes				NA		NA		
							Skin				NA		NA		
							Lungs				NA		NA		
							Gastrointestinal Tract and Forestomach				NA		NA		
							Whole Body				NA		NA		
							Blood				NA		NA		
							Nervous System				NA		NA		
							Dental				NA		NA		
							Red Blood Cells				NA		NA		
							Glands				NA		NA		
							Fetus				NA		NA		
							Immune System				NA		NA		
							Development				NA		NA		
							Reproduction				NA		NA		
							Bone				NA		NA		
							Not Available/ Not Reported				NA		NA		

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-1 for background metal evaluation summary.
[c]	See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d]	Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.19-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Volatile Organic Compounds												
Acetone	0	/ 18	0	–	0.2	–	2.63E+05	n	–	–	–	no
Acrolein	0	/ 3	0	–	0.2	–	1.83E+00	n	–	–	–	no
Acrylonitrile	0	/ 3	0	–	0.1	–	2.90E+02	n	–	–	–	no
Benzene	1	/ 18	5.56	0.0093	0.072	–	4.71E+02	n	no	–	1.97E-05	no
Bis(2-chloroethyl)ether	0	/ 7	0	–	0.5	–	1.46E+02	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/ 7	0	–	0.5	–	3.10E+03	c	–	–	–	no
Bromobenzene	0	/ 6	0	–	0.05	–	1.40E+03	n	–	–	–	no
Bromodichloromethane	0	/ 9	0	–	0.033	–	3.50E+03	c	–	–	–	no
Bromomethane	0	/ 18	0	–	0.067	–	6.71E+01	n	–	–	–	no
2-Butanone	0	/ 18	0	–	1	–	1.48E+05	n	–	–	–	no
n-Butylbenzene	0	/ 6	0	–	0.05	–	1.80E+04	n	–	–	–	no
sec-Butylbenzene	1	/ 6	16.7	0.095	0.05	–	1.05E+04	n	no	–	9.06E-06	no
tert-Butylbenzene	0	/ 6	0	–	0.05	–	1.04E+04	n	–	–	–	no
Carbon disulfide	0	/ 12	0	–	0.022	–	5.89E+03	n	–	–	–	no
Carbon tetrachloride	0	/ 18	0	–	0.05	–	1.99E+02	n	–	–	–	no
CFC-11	0	/ 10	0	–	0.05	–	5.82E+03	n	–	–	–	no
CFC-12	0	/ 9	0	–	0.25	–	1.37E+03	n	–	–	–	no
Chlorinated fluorocarbon (Freon 113)	0	/ 6	0	–	0.05	–	2.98E+05	n	–	–	–	no
Chlorobenzene	0	/ 18	0	–	0.05	–	1.58E+03	n	–	–	–	no
Chlorodibromomethane	0	/ 18	0	–	0.05	–	1.99E+03	c	–	–	–	no
Chloroethane	0	/ 18	0	–	0.096	–	1.23E+05	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/ 18	0	–	0.5	–	NA	n	–	–	–	no
Chloroform	0	/ 18	0	–	0.05	–	6.71E+02	c	–	–	–	no
Chloromethane	0	/ 7	0	–	0.01	–	1.13E+03	n	–	–	–	no
2-Chlorophenol	0	/ 7	0	–	0.5	–	1.55E+03	n	–	–	–	no
2-Chlorotoluene	0	/ 6	0	–	0.05	–	6.19E+03	n	–	–	–	no
4-Chlorotoluene	0	/ 6	0	–	0.05	–	2.17E+04	n	–	–	–	no
Cymene	0	/ 6	0	–	0.05	–	NA	n	–	–	–	no
Dibenzofuran	0	/ 4	0	–	0.5	–	9.53E+02	n	–	–	–	no
1,2-Dibromo-3-chloropropane (DBCP)	0	/ 6	0	–	0.05	–	5.99E+01	n	–	–	–	no
1,2-Dibromoethane	0	/ 6	0	–	0.05	–	4.86E+01	c	–	–	–	no
Dibromomethane	0	/ 9	0	–	0.05	–	3.10E+03	n	–	–	–	no
1,2-Dichlorobenzene	0	/ 14	0	–	0.5	–	9.71E+03	n	–	–	–	no
1,4-Dichlorobenzene	0	/ 14	0	–	0.5	–	3.78E+03	c	–	–	–	no
1,4 Dichloro-2-butene	0	/ 3	0	–	0.02	–	5.80E+00	c	–	–	–	no
1,1-Dichloroethane	1	/ 18	5.56	0.044	0.05	–	6.88E+03	c	no	6.39E-06	–	no
1,2-Dichloroethane	0	/ 18	0	–	0.05	–	7.51E+02	c	–	–	–	no
1,1-Dichloroethylene	0	/ 18	0	–	0.05	–	1.83E+03	n	–	–	–	no
cis-1,2-Dichloroethene	0	/ 15	0	–	0.05	–	3.10E+03	c	–	–	–	no
trans-1,2-Dichloroethene	0	/ 18	0	–	0.05	–	8.14E+02	n	–	–	–	no
Dichloromethane	0	/ 18	0	–	0.05	–	1.06E+04	n	–	–	–	no
1,2-Dichloropropane	0	/ 18	0	–	0.067	–	1.17E+02	n	–	–	–	no
1,3-Dichloropropane	0	/ 6	0	–	0.05	–	6.19E+03	n	–	–	–	no
2,2-Dichloropropane	0	/ 6	0	–	0.05	–	3.51E+01	n	–	–	–	no
1,1-Dichloropropene	0	/ 6	0	–	0.05	–	2.17E+03	c	–	–	–	no
cis-1,3-Dichloropropene	0	/ 18	0	–	0.05	–	5.10E+02	n	–	–	–	no
trans-1,3-Dichloropropene	0	/ 18	0	–	0.05	–	5.10E+02	n	–	–	–	no
Diethyl ether	0	/ 6	0	–	0.2	–	6.19E+04	n	–	–	–	no
Ethanol	0	/ 3	0	–	1	–	NA	n	–	–	–	no
Ethyl methacrylate	0	/ 3	0	–	0.02	–	2.79E+04	n	–	–	–	no
Ethylbenzene	1	/ 18	5.56	0.38	0.05	–	6.63E+03	c	no	5.74E-05	–	no

Table E.19-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Iodomethane	0	/	3	0	–	0.02	–	5.41E+01	n	–	–	–	no
Isopropylbenzene	1	/	6	16.7	0.65	0.05	–	1.03E+04	n	no	–	6.32E-05	no
m-Dichlorobenzene	0	/	14	0	–	0.5	–	9.29E+03	n	–	–	–	no
Methyl n-butyl ketone	0	/	18	0	–	0.2	–	1.13E+03	n	–	–	–	no
Methylbenzene	0	/	18	0	–	0.058	–	2.11E+04	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	18	0	–	0.2	–	2.31E+04	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	0	/	10	0	–	0.2	–	6.55E+04	c	–	–	–	no
Nitrobenzene	0	/	3	0	–	0.3	–	5.20E+02	n	–	–	–	no
n-Propylbenzene	1	/	6	16.7	0.12	0.05	–	1.64E+04	n	no	–	7.30E-06	no
Styrene (monomer)	0	/	18	0	–	0.05	–	3.03E+04	n	–	–	–	no
Tetrachloroethene	0	/	8	0	–	0.077	–	3.38E+02	c	–	–	–	no
1,1,1,2-Tetrachloroethane	0	/	7	0	–	0.053	–	2.78E+03	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	17	0	–	0.05	–	5.99E+02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	18	0	–	0.05	–	6.43E+04	n	–	–	–	no
1,1,2-Trichloroethane	0	/	18	0	–	0.053	–	1.24E+03	n	–	–	–	no
1,2,3-Trichlorobenzene	0	/	6	0	–	0.05	–	2.48E+02	n	–	–	–	no
1,2,3-Trichloropropane	0	/	9	0	–	0.05	–	3.10E+01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	13	0	–	0.5	–	4.27E+02	n	–	–	–	no
1,2,4-Trimethylbenzene	1	/	6	16.7	0.74	0.05	–	4.65E+02	n	no	–	1.59E-03	no
1,3,5-Trimethylbenzene	1	/	6	16.7	0.851	0.05	–	3.10E+03	n	no	–	2.75E-04	no
Trichloroethylene	0	/	8	0	–	0.11	–	4.60E+03	c	–	–	–	no
Vinyl acetate	0	/	12	0	–	0.067	–	1.05E+04	n	–	–	–	no
Vinyl chloride	0	/	18	0	–	0.1	–	2.48E+02	c	–	–	–	no
m,p-Xylene	0	/	7	0	–	0.077	–	2.38E+04	n	–	–	–	no
o-Xylene	0	/	7	0	–	0.05	–	2.75E+04	n	–	–	–	no
Xylenes	1	/	11	9.09	0.05	0.007	–	3.13E+03	n	no	–	1.60E-05	no
Semi Volatile Organic Compounds													
Benzidine	0	/	3	0	–	1.7 ^	–	7.20E-01	c	–	–	–	no
Benzoic acid	0	/	7	0	–	2	–	9.53E+05	n	–	–	–	no
Benzyl alcohol	0	/	4	0	–	0.9	–	2.38E+04	n	–	–	–	no
Benzyl butyl phthalate	0	/	7	0	–	0.5	–	4.76E+04	n	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	7	0	–	0.5	–	7.15E+02	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/	7	0	–	0.5	–	4.76E+03	n	–	–	–	no
4-Bromophenyl phenyl ether	0	/	7	0	–	0.5	–	NA	n	–	–	–	no
p-Chloroaniline	0	/	4	0	–	0.9	–	8.34E+02	c	–	–	–	no
4-Chloro-3-methylphenol	0	/	7	0	–	0.9	–	2.38E+04	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	7	0	–	0.5	–	NA	n	–	–	–	no
3,3'-Dichlorobenzidine	0	/	7	0	–	0.9	–	3.64E+02	c	–	–	–	no
2,4-Dichlorophenol	0	/	7	0	–	0.5	–	7.15E+02	n	–	–	–	no
Diethyl phthalate	0	/	7	0	–	0.5	–	1.91E+05	n	–	–	–	no
2,4-Dimethylphenol	0	/	7	0	–	0.5	–	4.76E+03	n	–	–	–	no
2,4-Dinitrophenol	0	/	7	0	–	2	–	4.76E+02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	3	0	–	0.3	–	4.76E+02	n	–	–	–	no
Dimethyl phthalate	0	/	7	0	–	0.5	–	2.38E+06	n	–	–	–	no
Di-n-butyl phthalate	0	/	7	0	–	0.5	–	2.38E+04	n	–	–	–	no
Di-n-octyl phthalate	0	/	7	0	–	0.5	–	9.53E+03	n	–	–	–	no
Hexachloro-1,3-butadiene	0	/	13	0	–	0.5	–	2.38E+02	n	–	–	–	no
Hexachlorobenzene	0	/	7	0	–	0.5	–	1.03E+02	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	7	0	–	0.5	–	8.11E+02	n	–	–	–	no
Hexachloroethane	0	/	7	0	–	0.5	–	2.38E+02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	3	0	–	0.33	–	1.91E+00	n	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	7	0	–	2	–	2.38E+01	n	–	–	–	no

Table E.19-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
2-Methylphenol	0	/	4	0	–		0.5	–	1.19E+04	n	–	–	–	no
4-Methylphenol	0	/	4	0	–		0.5	–	1.19E+03	n	–	–	–	no
2-Nitroaniline	0	/	4	0	–		2	–	3.88E+02	n	–	–	–	no
3-Nitroaniline	0	/	4	0	–		2	–	3.88E+02	n	–	–	–	no
p-Nitroaniline	0	/	4	0	–		2	–	9.37E+02	n	–	–	–	no
2-Nitrophenol	0	/	7	0	–		0.5	–	NA	n	–	–	–	no
4-Nitrophenol	0	/	7	0	–		2	–	NA	n	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	7	0	–		0.5	–	2.38E+01	c	–	–	–	no
n-Nitrosodiphenylamine	0	/	3	0	–		0.3	–	3.40E+04	c	–	–	–	no
n-Nitrosodiphenylamine & diphenylamine	0	/	4	0	–		0.5	–	NA	n	–	–	–	no
Pentachlorophenol	0	/	7	0	–		2	–	1.03E+03	c	–	–	–	no
Phenol	0	/	7	0	–		0.5	–	6.88E+04	n	–	–	–	no
Tribromomethane	0	/	15	0	–		0.063	–	4.76E+03	n	–	–	–	no
2,4,5-Trichlorophenol	0	/	4	0	–		0.5	–	2.38E+04	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	7	0	–		0.5	–	2.38E+02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	7	0	–		0.5	–	4.75E+04	n	–	–	–	no
Polycyclic Aromatic Hydrocarbons														
Acenaphthene	0	/	7	0	–		0.5	–	1.86E+04	n	–	–	–	no
Acenaphthylene	0	/	7	0	–		0.5	–	1.34E+04	n	–	–	–	no
Anthracene	0	/	7	0	–		0.5	–	6.68E+04	n	–	–	–	no
Benzo(a)anthracene	0	/	7	0	–		0.5	–	2.13E+02	c	–	–	–	no
Benzo(a)pyrene	0	/	7	0	–		0.5	–	2.13E+01	c	–	–	–	no
Benzo(b)fluoranthene	0	/	7	0	–		0.5	–	2.13E+02	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	7	0	–		0.5	–	6.68E+03	n	–	–	–	no
Benzo(k)fluoranthene	0	/	7	0	–		0.5	–	2.06E+03	c	–	–	–	no
1,2-Benzphenanthracene	0	/	7	0	–		0.5	–	2.06E+04	c	–	–	–	no
2-Chloronaphthalene	0	/	7	0	–		0.5	–	2.48E+04	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	7	0	–		0.5	–	2.13E+01	c	–	–	–	no
Fluoranthene	0	/	7	0	–		0.5	–	8.91E+03	n	–	–	–	no
Fluorene	0	/	7	0	–		0.5	–	8.91E+03	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	7	0	–		0.5	–	2.13E+02	c	–	–	–	no
2-Methylnaphthalene	0	/	4	0	–		0.5	–	8.91E+02	n	–	–	–	no
Naphthalene	0	/	13	0	–		0.5	–	7.02E+02	n	–	–	–	no
Phenanthrene	0	/	7	0	–		0.5	–	7.15E+03	n	–	–	–	no
Pyrene	0	/	7	0	–		0.5	–	6.68E+03	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH)														
>C10-C28	1	/	13	7.69	2,600	!	71	–	NA	n	NA	–	–	no
Total Petroleum Hydrocarbons (TPH)	5	/	36	13.9	11,000	!	40	–	NA	n	NA	–	–	no
Explosives														
2,6-Dinitrotoluene	0	/	3	0	–		0.3	–	2.39E+02	n	–	–	–	no
Inorganics														
Aluminum	1	/	1	100	4,700		–	YES	4.07E+04	n	no	–	1.16E-01	no
Ammonium Perchlorate	–		–	–	–		–	–	2.17E+02	n	–	–	–	no
Arsenic	6	/	18	33.3	2.1		2	YES	6.54E+01	n	no	–	3.21E-02	no
Barium	2	/	15	13.3	71		100	YES	4.35E+03	n	no	–	1.63E-02	no
Beryllium	0	/	7	0	–		2.5	no	1.44E+02	n	–	–	–	no
Cadmium	0	/	18	0	–		2.7	no	3.09E+02	n	–	–	–	no
Calcium metal	1	/	1	100	160,000	!	–	no	NA	n	NA	–	–	no
Chromium	1	/	15	6.67	7		7.3	YES	4.49E+02	n	no	–	1.56E-02	no
Cobalt	0	/	1	0	–		10	no	3.48E+01	n	–	–	–	no
Copper	6	/	7	85.7	7		5	no	1.24E+04	n	no	–	5.65E-04	no
Cyanide (Total)	0	/	4	0	–		0.2	no	4.76E+03	n	–	–	–	no

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Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/kg)		Max SQL (mg/kg)		Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)		Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction
Iron	1	/	1	100	3,800		–		YES	2.17E+05	n	no	–	1.75E-02	no
Lead	9	/	18	50	30		25		no	8.00E+02	IEUBK	no	–	–	no
Magnesium	1	/	1	100	4,700	!	–		no	NA	n	NA	–	–	no
Manganese	1	/	1	100	80		–		no	4.63E+02	n	no	–	1.73E-01	no
Mercury	0	/	17	0	–		0.5		no	6.36E+01	n	–	–	–	no
Molybdenum	0	/	1	0	–		13		no	1.55E+03	n	–	–	–	no
Nickel	6	/	7	85.7	10		8		no	6.19E+03	n	no	–	1.61E-03	no
Potassium	1	/	1	100	1,100	!	–		YES	NA	n	NA	–	–	no
Selenium	0	/	18	0	–		60		no	1.55E+03	n	–	–	–	no
Silver	0	/	8	0	–		5		no	1.55E+03	n	–	–	–	no
Sodium	1	/	1	100	590	!	–		YES	NA	n	NA	–	–	no
Thallium	0	/	7	0	–		60	^	no	2.04E+01	n	–	–	–	no
Titanium	1	/	1	100	100		–		no	2.27E+05	n	no	–	4.40E-04	no
Vanadium	1	/	1	100	21		–		no	1.55E+03	n	no	–	1.36E-02	no
Zinc	7	/	7	100	27		–		YES	9.29E+04	n	no	–	2.91E-04	no

Total Maximum / Screening Level Ratios	0.00006	0.4
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	6E-10	0.4

Target Organ Max/SL Ratios	
Kidney and Liver	0.05
Brain	NA
Nasal	NA
Eyes	NA
Skin	0.03
Lungs	0.02
Gastrointestinal Tract and Forestomach	0.02
Whole Body	0.01
Blood	0.03
Nervous System	0.2
Dental	NA
Red Blood Cells	NA
Glands	0.00006
Fetus	0.02
Immune System	NA
Development	0.1
Reproduction	NA
Bone	NA
Not Available/ Not Reported	0.1

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/kg =	Milligrams per kilogram.
NA =	Not available.
SQL =	Sample Quantification Limit.

Table E.19-HHRA-2
Selection of Constituents of Potential Concern in Soil - Based on Maximum Detected Concentrations
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/kg)	Max SQL (mg/kg)	Does Metal Pass Background Screen [b]	Site Screening Level (SL) [c] Construction Scenario (mg/kg)	Is EPC > Screening Level? Construction Scenario	Construction Scenario Max / SL (cancer)	Construction Scenario Max / SL (noncancer)	Constituent of Potential Concern (COPC)? [d] Construction

[a] Maximum detected concentration.
[b] See Table E.2-1 for background metal evaluation summary.
[c] See Table E.2-2 for sources of soil screening levels and explanation of notes.
[d] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.19-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) / number of			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Volatile Organic Compounds						
Acetone	23	/	170	14	15	yes
Acetonitrile	0	/	2	0	–	no
Acetophenone	0	/	26	0	–	no
Acrolein	0	/	27	0	–	no
Acrylonitrile	0	/	52	0	–	no
Allyl chloride	0	/	2	0	–	no
Benzene	31	/	170	18	1.4	yes
Bis(2-chloroethyl)ether	0	/	65	0	–	no
Bis(2-chloroisopropyl)ether	0	/	65	0	–	no
Bromobenzene	0	/	58	0	–	no
Bromodichloromethane	0	/	122	0	–	no
Bromomethane	4	/	171	2	0.14	yes
2-Butanone	23	/	170	14	2.2	yes
tert-Butyl alcohol	0	/	25	0	–	no
n-Butylbenzene	10	/	58	17	5.5	yes
sec-Butylbenzene	13	/	58	22	6.1	yes
tert-Butylbenzene	0	/	58	0	–	no
Carbon disulfide	3	/	137	2	0.068	yes
Carbon tetrachloride	0	/	171	0	–	no
CFC-11	1	/	134	1	0.0066	yes
CFC-12	0	/	85	0	–	no
Chlorinated fluorocarbon (Freon 113)	1	/	26	4	0.17	yes
Chlorobenzene	0	/	171	0	–	no
Chlorobromomethane	0	/	34	0	–	no
2-Chlor-1,3-butadiene	0	/	2	0	–	no
Chloroethane	2	/	171	1	0.0077	yes
2-Chloroethyl vinyl ether	0	/	159	0	–	no
Chloroform	0	/	171	0	–	no
Chloromethane	2	/	100	2	0.046	yes
2-Chlorophenol	0	/	65	0	–	no
2-Chlorotoluene	0	/	58	0	–	no
4-Chlorotoluene	0	/	58	0	–	no
Cymene	7	/	58	12	11	yes
Dibenzofuran	12	/	40	30	5.3	yes
1,2-Dibromoethane	0	/	60	0	–	no
Dibromomethane	0	/	85	0	–	no
1,2-Dichlorobenzene	0	/	147	0	–	no
1,2-Dichlorobenzene/1,3-Dichlorobenzene	0	/	1	0	–	no
1,4-Dichlorobenzene	0	/	148	0	–	no
1,4 Dichloro-2-butene	0	/	27	0	–	no
trans-1,4-Dichlorobutene	0	/	25	0	–	no
1,1-Dichloroethane	12	/	171	7	0.095	yes
1,2-Dichloroethane	1	/	171	1	0.044	yes
1,1-Dichloroethylene	3	/	171	2	0.048	yes
1,2-Dichloroethene	0	/	1	0	–	no
cis-1,2-Dichloroethene	0	/	142	0	–	no
trans-1,2-Dichloroethene	0	/	170	0	–	no
Dichloromethane	10	/	171	6	0.069	yes
1,2-Dichloropropane	0	/	171	0	–	no
1,3-Dichloropropane	0	/	58	0	–	no
2,2-Dichloropropane	0	/	58	0	–	no
1,1-Dichloropropene	0	/	58	0	–	no
cis-1,3-Dichloropropene	0	/	170	0	–	no
trans-1,3-Dichloropropene	0	/	171	0	–	no
Diethyl ether	0	/	24	0	–	no
Ethyl methacrylate	0	/	27	0	–	no
Ethylbenzene	40	/	170	24	5.7	yes
Iodomethane	0	/	52	0	–	no
Isopropylbenzene	13	/	58	22	5	yes
m-Dichlorobenzene	0	/	147	0	–	no
Methyl methacrylate	0	/	2	0	–	no

Table E.19-HHRA-3
Selection of Constituents of Potential Concern in Soil for the Vapor Intrusion Pathway
Total Soil Depth Interval
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent [a]	Frequency of Detection (FOD) / number of			FOD %	Max Detect (mg/kg)	Constituent of Potential Concern for Vapor Inhalation [a]
Methyl n-butyl ketone	0	/	169	0	–	no
Methylacrylonitrile	0	/	2	0	–	no
Methylbenzene	8	/	170	5	0.075	yes
2-Methyl-1-propanol	0	/	2	0	–	no
4-Methyl-2-pentanone (MIBK)	0	/	170	0	–	no
Methyl tert-butyl ether (MTBE)	0	/	65	0	–	no
Nitrobenzene	0	/	53	0	–	no
Propionitrile	0	/	2	0	–	no
n-Propylbenzene	12	/	58	21	7.8	yes
Styrene (monomer)	0	/	170	0	–	no
Tetrachloroethene	3	/	108	3	0.099	yes
1,1,1,2-Tetrachloroethane	0	/	67	0	–	no
1,1,2,2-Tetrachloroethane	1	/	164	1	0.0082	yes
1,1,1-Trichloroethane	25	/	171	15	1.3	yes
1,1,2-Trichloroethane	0	/	171	0	–	no
1,2,3-Trichlorobenzene	2	/	49	4	0.07	yes
1,2,3-Trichloropropane	0	/	85	0	–	no
1,2,4-Trichlorobenzene	0	/	99	0	–	no
1,2,4-Trimethylbenzene	11	/	58	19	32	yes
1,3,5-Trimethylbenzene	8	/	60	13	11	yes
Trichloroethylene	0	/	108	0	–	no
Vinyl acetate	0	/	112	0	–	no
Vinyl chloride	2	/	171	1	0.21	yes
m,p-Xylene	23	/	97	24	3.9	yes
o-Xylene	30	/	97	31	4.5	yes
Xylenes	27	/	73	37	7	yes
Semi Volatile Organic Compounds						
Isosafrole	0	/	2	0	–	no
n-Nitrosodi-n-butylamine	0	/	26	0	–	no
o,o,o-Triethyl phosphorothioate	0	/	2	0	–	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	9	/	65	14	3.1	yes
Acenaphthylene	0	/	65	0	–	no
Anthracene	9	/	65	14	10.6	yes
1-Chloronaphthalene	0	/	24	0	–	no
2-Chloronaphthalene	0	/	65	0	–	no
Fluorene	19	/	65	29	6.38	yes
1-Methylnaphthalene	7	/	24	29	55.8	yes
2-Methylnaphthalene	15	/	40	38	71.3	yes
Naphthalene	29	/	99	29	10	yes
Phenanthrene	21	/	65	32	18	yes

Notes:
– = Not applicable.
Max = Maximum concentration.
mg/kg = Milligrams per kilogram.

[a] All detected volatile constituents were selected as COPCs for the vapor inhalation pathway.

Table E.19-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds								
Acetone	0 / 78	0	–	0.01	2.20E+02 n	–	–	–
Acetophenone	0 / 78	0	–	5	8.00E+02 n	–	–	–
Acrylonitrile	0 / 78	0	–	0.001	8.50E-02 c	–	–	–
Benzene	32 / 78	41	0.0602	0.001	1.40E-02 c	YES	4.30E+00	–
Bis(2-chloroethyl)ether	0 / 78	0	–	5 ^	1.00E-01 c	–	–	–
Bis(2-chloroisopropyl)ether	0 / 78	0	–	5	NA c	–	–	–
Bromobenzene	0 / 78	0	–	0.001	NA n	–	–	–
Bromodichloromethane	0 / 78	0	–	0.001	2.10E-02 c	–	–	–
Bromomethane	0 / 78	0	–	0.005	2.00E-02 n	–	–	–
2-Butanone	0 / 78	0	–	0.005	4.40E+02 n	–	–	–
tert-Butyl alcohol	0 / 9	0	–	0.005	NA n	–	–	–
n-Butylbenzene	7 / 78	8.97	0.01	0.001	2.60E-01 n	no	–	3.85E-02
sec-Butylbenzene	15 / 78	19.2	0.0103	0.001	2.50E-01 n	no	–	4.12E-02
tert-Butylbenzene	0 / 78	0	–	0.001	2.90E-01 n	–	–	–
Carbon disulfide	1 / 78	1.28	0.00935	0.001	5.60E-01 n	no	–	1.67E-02
Carbon tetrachloride	0 / 78	0	–	0.001	5.00E-03 c	–	–	–
CFC-11	0 / 78	0	–	0.001	1.80E-01 n	–	–	–
CFC-12	0 / 78	0	–	0.001	1.40E-02 n	–	–	–
Chlorobenzene	0 / 78	0	–	0.001	3.90E-01 n	–	–	–
Chlorobromomethane	0 / 78	0	–	0.001	NA n	–	–	–
Chloroethane	0 / 78	0	–	0.001	2.80E+01 n	–	–	–
2-Chloroethyl vinyl ether	0 / 78	0	–	0.005	NA n	–	–	–
Chloroform	24 / 78	30.8	0.00395	0.001	8.00E-02 c	no	4.94E-02	–
Chloromethane	3 / 78	3.85	0.00373	0.001	6.70E-02 c	no	5.57E-02	–
2-Chlorophenol	0 / 78	0	–	5 ^	1.10E+00 n	–	–	–
2-Chlorotoluene	0 / 78	0	–	0.001	NA n	–	–	–
4-Chlorotoluene	0 / 78	0	–	0.001	NA n	–	–	–
Cymene	5 / 78	6.41	0.0146 !	0.001	NA n	NA	–	–
Dibenzofuran	15 / 78	19.2	0.0285 !	5	NA n	NA	–	–
1,2-Dibromoethane	0 / 78	0	–	0.001	3.60E-03 c	–	–	–
Dibromomethane	0 / 78	0	–	0.001	9.90E-01 n	–	–	–
1,2-Dichlorobenzene	0 / 78	0	–	5 ^	2.60E+00 n	–	–	–
1,4-Dichlorobenzene	0 / 78	0	–	5	8.20E+00 c	–	–	–
trans-1,4-Dichlorobutene	0 / 78	0	–	0.01	NA c	–	–	–
1,1-Dichloroethane	50 / 78	64.1	0.125	0.001	2.20E+00 c	no	5.68E-02	–
1,2-Dichloroethane	1 / 78	1.28	0.00136	0.001	2.30E-02 c	no	5.91E-02	–
1,1-Dichloroethylene	4 / 78	5.13	0.00356	0.001	1.90E-01 n	no	–	1.87E-02
cis-1,2-Dichloroethene	0 / 78	0	–	0.001	2.10E-01 n	–	–	–
trans-1,2-Dichloroethene	0 / 78	0	–	0.001	1.80E-01 n	–	–	–
Dichloromethane	0 / 78	0	–	0.005	5.80E-01 c	–	–	–
1,2-Dichloropropane	0 / 78	0	–	0.001	3.50E-02 c	–	–	–
1,3-Dichloropropane	0 / 78	0	–	0.001	NA n	–	–	–

Table E.19-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)		Max SQL (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
2,2-Dichloropropane	0 / 78	0	–		0.001		NA	n	–	–	–
1,1-Dichloropropene	0 / 78	0	–		0.001		NA	c	–	–	–
cis-1,3-Dichloropropene	0 / 78	0	–		0.001		NA	c	–	–	–
trans-1,3-Dichloropropene	0 / 78	0	–		0.001		NA	c	–	–	–
Ethylbenzene	7 / 78	8.97	0.0156		0.001		7.00E-01	c	no	2.23E-02	–
Iodomethane	0 / 78	0	–		0.005		NA	n	–	–	–
Isopropylbenzene	18 / 78	23.1	0.0192		0.001		8.40E-03	n	YES	–	2.29E+00
m-Dichlorobenzene	0 / 78	0	–		5	^	8.30E-01	n	–	–	–
Methyl n-butyl ketone	0 / 78	0	–		0.005		NA	n	–	–	–
Methylbenzene	1 / 78	1.28	0.00592		0.001		1.50E+00	n	no	–	3.95E-03
4-Methyl-2-pentanone (MIBK)	0 / 78	0	–		0.005		1.40E+01	n	–	–	–
Methyl tert-butyl ether (MTBE)	16 / 78	20.5	0.0104		0.001		1.20E+02	c	no	8.67E-05	–
Nitrobenzene	2 / 78	2.56	0.0195		5		2.00E+00	c	no	9.75E-03	–
n-Propylbenzene	9 / 78	11.5	0.014		0.001		3.20E-01	n	no	–	4.38E-02
Styrene (monomer)	0 / 78	0	–		0.001		8.90E+00	n	–	–	–
Tetrachloroethene	1 / 78	1.28	0.00244		0.001		1.10E-02	c	no	2.22E-01	–
1,1,1,2-Tetrachloroethane	0 / 78	0	–		0.001		3.30E-02	c	–	–	–
1,1,2,2-Tetrachloroethane	0 / 78	0	–		0.001		3.00E-02	c	–	–	–
1,1,1-Trichloroethane	8 / 78	10.3	0.00183		0.001		3.10E+00	n	no	–	5.90E-04
1,1,2-Trichloroethane	0 / 78	0	–		0.001		4.10E-02	c	–	–	–
1,2,3-Trichlorobenzene	0 / 78	0	–		0.005		NA	n	–	–	–
1,2,3-Trichloropropane	0 / 78	0	–		0.001		2.90E-01	c	–	–	–
1,2,4-Trichlorobenzene	0 / 78	0	–		0.005		3.40E+00	n	–	–	–
1,2,4-Trimethylbenzene	19 / 78	24.4	0.0955		0.001		2.40E-02	n	YES	–	3.98E+00
1,3,5-Trimethylbenzene	10 / 78	12.8	0.0276		0.001		2.50E-02	n	YES	–	1.10E+00
Trichloroethylene	17 / 78	21.8	0.0399		0.001		5.00E-03	c	YES	7.98E+00	–
Vinyl chloride	0 / 78	0	–		0.001		2.50E-03	c	–	–	–
m,p-Xylene	0 / 78	0	–		0.001		2.30E+01	n	–	–	–
o-Xylene	3 / 78	3.85	0.0173		0.001		3.30E+01	n	no	–	5.24E-04
Semi Volatile Organic Compounds											
n-Nitrosodi-n-butylamine	0 / 78	0	–		5	^	1.20E-03	c	–	–	–
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	13 / 78	16.7	0.76	!	5		NA	n	NA	–	–
Acenaphthylene	0 / 78	0	–		5		NA	n	–	–	–
Anthracene	9 / 78	11.5	0.316	!	5		NA	n	NA	–	–
1-Chloronaphthalene	0 / 78	0	–		5		NA	n	–	–	–
2-Chloronaphthalene	0 / 78	0	–		5		NA	n	–	–	–
Fluorene	15 / 78	19.2	1.4	!	5		NA	n	NA	–	–
1-Methylnaphthalene	24 / 78	30.8	26.6	!	5		NA	c	NA	–	–
2-Methylnaphthalene	23 / 78	29.5	26.3		5		3.30E+00	n	YES	–	7.97E+00
Naphthalene	22 / 78	28.2	1.76		0.005		1.50E-01	c	YES	1.17E+01	–
Phenanthrene	16 / 78	20.5	3.75	!	5		NA	n	NA	–	–

Table E.19-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Total Maximum / Screening Level Ratios							25	16
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)							2.5E-04	16
						Target Organ Max/SL Ratios		
						Kidney and Liver		2
						Brain		NA
						Nasal		NA
						Eyes		NA
						Skin		NA
						Lungs		11.9
						Gastrointestinal Tract and Forestomach		NA
						Whole Body		0.0005
						Blood		NA
						Nervous System		0.02
						Dental		NA
						Red Blood Cells		NA
						Glands		2
						Fetus		0.02
						Immune System		NA
						Development		NA
						Reproduction		NA
						Bone		NA
						Not Available/ Not Reported		5

Notes:

– = Not applicable.
! = Constituent was detected and screening level/ toxicity information is not available.
^ = Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] Maximum detected concentration.
[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Maximum/Screening Level) exceeded 1 x 10-5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.19-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	0	/	78	0	–		2.20E+02	n	–	–	–	no
Acetophenone	0	/	78	0	–		8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	78	0	–		8.50E-02	c	–	–	–	no
Benzene	32	/	78	41	0.0123		1.40E-02	c	no	8.79E-01	–	yes
Bis(2-chloroethyl)ether	0	/	78	0	–		1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	78	0	–		NA	c	–	–	–	no
Bromobenzene	0	/	78	0	–		NA	n	–	–	–	no
Bromodichloromethane	0	/	78	0	–		2.10E-02	c	–	–	–	no
Bromomethane	0	/	78	0	–		2.00E-02	n	–	–	–	no
2-Butanone	0	/	78	0	–		4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	9	0	–		NA	n	–	–	–	no
n-Butylbenzene	7	/	78	8.97	0.00172		2.60E-01	n	no	–	6.62E-03	yes
sec-Butylbenzene	15	/	78	19.2	0.00209		2.50E-01	n	no	–	8.36E-03	yes
tert-Butylbenzene	0	/	78	0	–		2.90E-01	n	–	–	–	no
Carbon disulfide	1	/	78	1.28	0.00935	m	5.60E-01	n	no	–	1.67E-02	yes
Carbon tetrachloride	0	/	78	0	–		5.00E-03	c	–	–	–	no
CFC-11	0	/	78	0	–		1.80E-01	n	–	–	–	no
CFC-12	0	/	78	0	–		1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	78	0	–		3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	78	0	–		NA	n	–	–	–	no
Chloroethane	0	/	78	0	–		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	78	0	–		NA	n	–	–	–	no
Chloroform	24	/	78	30.8	0.00153		8.00E-02	c	no	1.91E-02	–	yes
Chloromethane	3	/	78	3.85	0.00373	m	6.70E-02	c	no	5.57E-02	–	yes
2-Chlorophenol	0	/	78	0	–		1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	78	0	–		NA	n	–	–	–	no
4-Chlorotoluene	0	/	78	0	–		NA	n	–	–	–	no
Cymene	5	/	78	6.41	0.00371		NA	n	NA	–	–	yes
Dibenzofuran	15	/	78	19.2	0.00939		NA	n	NA	–	–	yes
1,2-Dibromoethane	0	/	78	0	–		3.60E-03	c	–	–	–	no
Dibromomethane	0	/	78	0	–		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	78	0	–		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	78	0	–		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	78	0	–		NA	c	–	–	–	no
1,1-Dichloroethane	50	/	78	64.1	0.0259		2.20E+00	c	no	1.18E-02	–	yes
1,2-Dichloroethane	1	/	78	1.28	0.00136	m	2.30E-02	c	no	5.91E-02	–	yes
1,1-Dichloroethylene	4	/	78	5.13	0.00356	m	1.90E-01	n	no	–	1.87E-02	yes
cis-1,2-Dichloroethene	0	/	78	0	–		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	78	0	–		1.80E-01	n	–	–	–	no
Dichloromethane	0	/	78	0	–		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	78	0	–		3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	78	0	–		NA	n	–	–	–	no

Table E.19-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of			FOD %	EPC [a] (mg/L)		Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
2,2-Dichloropropane	0	/	78	0	–		NA	n	–	–	–	no
1,1-Dichloropropene	0	/	78	0	–		NA	c	–	–	–	no
cis-1,3-Dichloropropene	0	/	78	0	–		NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	78	0	–		NA	c	–	–	–	no
Ethylbenzene	7	/	78	8.97	0.00267		7.00E-01	c	no	3.81E-03	–	yes
Iodomethane	0	/	78	0	–		NA	n	–	–	–	no
Isopropylbenzene	18	/	78	23.1	0.00342		8.40E-03	n	no	–	4.07E-01	yes
m-Dichlorobenzene	0	/	78	0	–		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/	78	0	–		NA	n	–	–	–	no
Methylbenzene	1	/	78	1.28	0.00592	m	1.50E+00	n	no	–	3.95E-03	yes
4-Methyl-2-pentanone (MIBK)	0	/	78	0	–		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	16	/	78	20.5	0.00252		1.20E+02	c	no	2.10E-05	–	yes
Nitrobenzene	2	/	78	2.56	0.0195	m	2.00E+00	c	no	9.75E-03	–	yes
n-Propylbenzene	9	/	78	11.5	0.00222		3.20E-01	n	no	–	6.94E-03	yes
Styrene (monomer)	0	/	78	0	–		8.90E+00	n	–	–	–	no
Tetrachloroethene	1	/	78	1.28	0.00244	m	1.10E-02	c	no	2.22E-01	–	yes
1,1,1,2-Tetrachloroethane	0	/	78	0	–		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	78	0	–		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	8	/	78	10.3	0.00124		3.10E+00	n	no	–	4.00E-04	yes
1,1,2-Trichloroethane	0	/	78	0	–		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	78	0	–		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/	78	0	–		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	78	0	–		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	19	/	78	24.4	0.0122		2.40E-02	n	no	–	5.08E-01	yes
1,3,5-Trimethylbenzene	10	/	78	12.8	0.0035		2.50E-02	n	no	–	1.40E-01	yes
Trichloroethylene	17	/	78	21.8	0.00373		5.00E-03	c	no	7.46E-01	–	yes
Vinyl chloride	0	/	78	0	–		2.50E-03	c	–	–	–	no
m,p-Xylene	0	/	78	0	–		2.30E+01	n	–	–	–	no
o-Xylene	3	/	78	3.85	0.0173	m	3.30E+01	n	no	–	5.24E-04	yes
Semi Volatile Organic Compounds												
n-Nitrosodi-n-butylamine	0	/	78	0	–		1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	13	/	78	16.7	0.0515		NA	n	NA	–	–	yes
Acenaphthylene	0	/	78	0	–		NA	n	–	–	–	no
Anthracene	9	/	78	11.5	0.035		NA	n	NA	–	–	yes
1-Chloronaphthalene	0	/	78	0	–		NA	n	–	–	–	no
2-Chloronaphthalene	0	/	78	0	–		NA	n	–	–	–	no
Fluorene	15	/	78	19.2	0.0826		NA	n	NA	–	–	yes
1-Methylnaphthalene	24	/	78	30.8	2.116		NA	c	NA	–	–	yes
2-Methylnaphthalene	23	/	78	29.5	2.192		3.30E+00	n	no	–	6.64E-01	yes
Naphthalene	22	/	78	28.2	0.116		1.50E-01	c	no	7.73E-01	–	yes
Phenanthrene	16	/	78	20.5	0.547		NA	n	NA	–	–	yes

Table E.19-HHRA-5
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Saturated Vadose Zone Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) detects / number of	FOD %	EPC [a] (mg/L)	Saturated Vadose Zone Soil Water Screening Level [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Total Maximum / Screening Level Ratios						3	2	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)						3.0E-05	2	
					Target Organ Max/SL Ratios			
					Kidney and Liver		0.4	
					Brain		NA	
					Nasal		NA	
					Eyes		NA	
					Skin		NA	
					Lungs		1	
					Gastrointestinal Tract and Forestomach		NA	
					Whole Body		0.0005	
					Blood		NA	
					Nervous System		0.02	
					Dental		NA	
					Red Blood Cells		NA	
					Glands		0.4	
					Fetus		0.02	
					Immune System		NA	
					Development		NA	
					Reproduction		NA	
					Bone		NA	
					Not Available/ Not Reported		0.7	

Notes:

– = Not applicable.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.

[b] See Table E.2-3 for sources of saturated vadose zone soil water screening levels and explanation of notes.

[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.19-HHRA-6
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
Volatile Organic Compounds									
Acetone	no	no	no	yes	no	–	–	1.06E+00	–
Benzene	no	no	no	yes	yes	–	–	7.51E-02	1.23E-02
Bromomethane	no	no	no	yes	no	–	–	1.40E-01 m	–
2-Butanone	no	no	no	yes	no	–	–	1.06E-01	–
n-Butylbenzene	no	no	no	yes	yes	–	–	6.55E-01	1.72E-03
sec-Butylbenzene	no	no	no	yes	yes	–	–	5.44E-01	2.09E-03
Carbon disulfide	no	no	no	yes	yes	–	–	6.80E-02 m	9.35E-03 m
CFC-11	no	no	no	yes	no	–	–	6.60E-03 m	–
Chlorinated fluorocarbon (Freon 113)	no	no	no	yes	no	–	–	1.70E-01 m	–
Chloroethane	no	no	no	yes	no	–	–	7.70E-03 m	–
Chloroform	no	no	no	no	yes	–	–	–	1.53E-03
Chloromethane	no	no	no	yes	yes	–	–	4.60E-02 m	3.73E-03 m
Cymene	no	no	no	yes	yes	–	–	1.06E+00	3.71E-03
Dibenzofuran	no	no	no	yes	yes	–	–	1.17E+00	9.39E-03
1,1-Dichloroethane	no	no	no	yes	yes	–	–	1.09E-02	2.59E-02
1,2-Dichloroethane	no	no	no	yes	yes	–	–	4.40E-02 m	1.36E-03 m
1,1-Dichloroethylene	no	no	no	yes	yes	–	–	4.80E-02 m	3.56E-03 m
Dichloromethane	no	no	no	yes	no	–	–	8.37E-03	–
Ethylbenzene	no	no	no	yes	yes	–	–	3.53E-01	2.67E-03
Isopropylbenzene	no	no	no	yes	yes	–	–	3.71E-01	3.42E-03
Methylbenzene	no	no	no	yes	yes	–	–	6.15E-03	5.92E-03 m
Methyl tert-butyl ether (MTBE)	no	no	no	no	yes	–	–	–	2.52E-03
Nitrobenzene	no	no	no	no	yes	–	–	–	1.95E-02 m
n-Propylbenzene	no	no	no	yes	yes	–	–	5.00E-01	2.22E-03
Tetrachloroethene	no	no	no	yes	yes	–	–	9.90E-02 m	2.44E-03 m
1,1,2,2-Tetrachloroethane	no	no	no	yes	no	–	–	8.20E-03 m	–
1,1,1-Trichloroethane	no	no	no	yes	yes	–	–	4.71E-02	1.24E-03
1,2,3-Trichlorobenzene	no	no	no	yes	no	–	–	7.00E-02 m	–
1,2,4-Trimethylbenzene	no	no	no	yes	yes	–	–	2.29E+00	1.22E-02
1,3,5-Trimethylbenzene	no	no	no	yes	yes	–	–	8.32E-01	3.50E-03
Trichloroethylene	no	no	no	no	yes	–	–	–	3.73E-03
Vinyl chloride	no	no	no	yes	no	–	–	2.10E-01 m	–
m,p-Xylene	no	no	no	yes	no	–	–	3.08E-01	–
o-Xylene	no	no	no	yes	yes	–	–	7.19E-01	1.73E-02 m
Xylenes	no	no	no	yes	no	–	–	9.25E-01	–
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	no	no	no	yes	yes	–	–	4.05E-01	5.15E-02
Anthracene	no	no	no	yes	yes	–	–	1.17E+00	3.50E-02
Fluorene	no	no	no	yes	yes	–	–	1.16E+00	8.26E-02

Table E.19-HHRA-6
Summary of Constituents of Potential Concern and Exposure Point Concentrations
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]					Exposure Point Concentrations [b]			
	Soil (0-2)		Soil (0-10)	Soil	Saturated Vadose Zone	Soil (0-2)	Soil (0-10)	Soil (All Depths)	Saturated Vadose Zone Soil Water
	Residential	Industrial	Construction	All Depths	Soil Water	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)
1-Methylnaphthalene	no	no	no	yes	yes	–	–	9.17E+00	2.12E+00
2-Methylnaphthalene	no	no	no	yes	yes	–	–	1.29E+01	2.19E+00
Naphthalene	no	no	no	yes	yes	–	–	1.71E+00	1.16E-01
Phenanthrene	no	no	no	yes	yes	–	–	3.03E+00	5.47E-01

Notes:
– = Not detected/ not analyzed/ not applicable.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable.
EPCs marked with "m" are based on the maximum detected concentration.
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.19.HHRA-7
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Soil Concentration C_R (µg/kg)	Chemical
67641	1.06E+03	Acetone
71432	7.51E+01	Benzene
74839	1.40E+02	Methyl bromide
78933	1.06E+02	Methylethylketone (2-butanone)
104518	6.55E+02	n-Butylbenzene
135988	5.44E+02	sec-Butylbenzene
75150	6.80E+01	Carbon disulfide
75694	6.60E+00	Trichlorofluoromethane
76131	1.70E+02	1,1,2-Trichloro-1,2,2-trifluoroethane
75003	7.70E+00	Chloroethane (ethyl chloride)
74873	4.60E+01	Methyl chloride (chloromethane)
99876	1.06E+03	p-Isopropyltoluene
132649	5.30E+03	Dibenzofuran
75343	9.50E+01	1,1-Dichloroethane
107062	4.40E+01	1,2-Dichloroethane
75354	4.80E+01	1,1-Dichloroethylene
75092	8.37E+00	Methylene chloride
100414	3.53E+02	Ethylbenzene
98828	3.71E+02	Cumene
108883	7.50E+01	Toluene
103651	5.00E+02	n-Propylbenzene
127184	9.90E+01	Tetrachloroethylene
79345	8.20E+00	1,1,2,2-Tetrachloroethane
71556	4.71E+01	1,1,1-Trichloroethane
87616	7.00E+01	1,2,3-Trichlorobenzene
95636	2.29E+03	1,2,4-Trimethylbenzene
108678	8.32E+02	1,3,5-Trimethylbenzene
75014	2.10E+02	Vinyl chloride (chloroethene)
108383	3.08E+02	m-Xylene
95476	7.19E+02	o-Xylene
1330207	9.25E+02	Xylenes (total)
83329	3.10E+03	Acenaphthene
120127	1.17E+03	Anthracene
86737	1.16E+03	Fluorene
90120	9.17E+03	1-Methylnaphthalene
91576	1.29E+04	2-Methylnaphthalene
91203	1.71E+03	Naphthalene
85018	3.03E+03	Phenanthrene

Table E.19.HHRA-7
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER		ENTER
	Depth		Depth below	Totals must add up to value of L_t (cell G45)			Soil		
Average soil temperature, T_S (^oC)	below grade to bottom of enclosed space floor, L_F (cm)	Depth below grade to top of contamination, L_t (cm)	grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	of soil stratum C, (Enter value or 0) h_C (cm)	SCS soil type (used to estimate soil vapor permeability)	OR	User-defined stratum A soil vapor permeability, k_v (cm^2)
16.7	15	1219	0	1219			SIL		

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Stratum A SCS soil type	Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	Stratum A soil total porosity, n^A (unitless)	Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	Stratum B SCS soil type	Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	Stratum B soil total porosity, n^B (unitless)	Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	Stratum B soil organic carbon fraction, f_{oc}^B (unitless)
Lookup Soil Parameters					Lookup Soil Parameters				
SIL	1.55	0.44	0.26	0.0015					

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Enclosed space floor thickness, L_{crack} (cm)	Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	Enclosed space floor length, L_B (cm)	Enclosed space floor width, W_B (cm)	Enclosed space height, H_B (cm)	Floor-wall seam crack width, w (cm)	Indoor air exchange rate, ER (1/h)	Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	

Table E.19.HHRA-8
Intercalculations
Estimating Vapor Concentrations in Indoor Air Migrating from Total Soil
Future Scenario
Solid Waste Management Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Constituent	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Source vapor conc., C_{source} (µg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	2.71E-03	7.12E+03	1.65E+00	2.71E-03	4.20E+06	5.76E-05	4.10E-01
Benzene	8,053	3.75E-03	1.58E-01	1.77E-04	1.51E-03	1.51E-03	4.32E+04	1.65E+00	1.51E-03	7.57E+11	5.76E-05	2.48E+00
Methyl bromide	5,584	4.75E-03	2.00E-01	1.77E-04	1.25E-03	1.25E-03	1.35E+05	1.65E+00	1.25E-03	2.25E+14	5.76E-05	7.79E+00
Methylethylketone (2-butanone)	8,336	3.73E-05	1.57E-03	1.77E-04	1.75E-03	1.75E-03	9.69E+02	1.65E+00	1.75E-03	1.84E+10	5.76E-05	5.58E-02
n-Butylbenzene	11,763	7.43E-03	3.13E-01	1.77E-04	9.77E-04	9.77E-04	1.09E+05	1.65E+00	9.77E-04	2.26E+18	5.76E-05	6.29E+00
sec-Butylbenzene	107,393	7.72E-05	3.24E-03	1.77E-04	1.12E-03	1.12E-03	1.09E+03	1.65E+00	1.12E-03	9.86E+15	5.76E-05	6.28E-02
Carbon disulfide	6,630	2.19E-02	9.22E-01	1.77E-04	1.78E-03	1.78E-03	1.83E+05	1.65E+00	1.78E-03	1.18E+10	5.76E-05	1.05E+01
Trichlorofluoromethane	6,080	7.21E-02	3.03E+00	1.77E-04	1.49E-03	1.49E-03	1.58E+04	1.65E+00	1.49E-03	1.10E+12	5.76E-05	9.11E-01
1,1,2-Trichloro-1,2,2-trifluoroethane	6,883	3.44E-01	1.45E+01	1.77E-04	1.33E-03	1.33E-03	1.32E+05	1.65E+00	1.33E-03	2.71E+13	5.76E-05	7.62E+00
Chloroethane (ethyl chloride)	5,827	6.64E-03	2.79E-01	1.77E-04	4.64E-03	4.64E-03	1.04E+04	1.65E+00	4.64E-03	7.32E+03	5.76E-05	5.98E-01
Methyl chloride (chloromethane)	4,667	7.02E-03	2.95E-01	1.77E-04	2.16E-03	2.16E-03	6.62E+04	1.65E+00	2.16E-03	2.05E+08	5.76E-05	3.81E+00
p-Isopropyltoluene	11,255	6.38E-03	2.68E-01	1.77E-04	1.34E-03	1.34E-03	1.30E+05	1.65E+00	1.34E-03	2.29E+13	5.76E-05	7.50E+00
Dibenzofuran	87,214	1.86E-07	7.80E-06	1.77E-04	4.52E-02	4.52E-02	5.24E+00	1.65E+00	4.52E-02	2.49E+00	7.54E-05	3.95E-04
1,1-Dichloroethane	7,376	3.92E-03	1.65E-01	1.77E-04	1.27E-03	1.27E-03	6.69E+04	1.65E+00	1.27E-03	1.20E+14	5.76E-05	3.85E+00
1,2-Dichloroethane	8,449	6.49E-04	2.73E-02	1.77E-04	1.80E-03	1.80E-03	6.10E+03	1.65E+00	1.80E-03	9.06E+09	5.76E-05	3.51E-01
1,1-Dichloroethylene	6,348	1.92E-02	8.05E-01	1.77E-04	1.54E-03	1.54E-03	1.11E+05	1.65E+00	1.54E-03	4.34E+11	5.76E-05	6.36E+00
Methylene chloride	6,963	1.56E-03	6.56E-02	1.77E-04	1.74E-03	1.74E-03	2.85E+03	1.65E+00	1.74E-03	2.05E+10	5.76E-05	1.64E-01
Ethylbenzene	10,078	4.83E-03	2.03E-01	1.77E-04	1.29E-03	1.29E-03	9.74E+04	1.65E+00	1.29E-03	8.85E+13	5.76E-05	5.61E+00
Cumene	12,550	7.96E-03	3.35E-01	1.77E-04	1.11E-03	1.11E-03	1.32E+05	1.65E+00	1.11E-03	1.27E+16	5.76E-05	7.61E+00
Toluene	9,082	4.27E-03	1.80E-01	1.77E-04	1.49E-03	1.49E-03	2.92E+04	1.65E+00	1.49E-03	1.05E+12	5.76E-05	1.68E+00
n-Propylbenzene	11,281	6.18E-03	2.60E-01	1.77E-04	1.03E-03	1.03E-03	1.25E+05	1.65E+00	1.03E-03	2.54E+17	5.76E-05	7.18E+00
Tetrachloroethylene	9,485	1.16E-02	4.88E-01	1.77E-04	1.23E-03	1.23E-03	1.06E+05	1.65E+00	1.23E-03	3.48E+14	5.76E-05	6.08E+00
1,1,2,2-Tetrachloroethane	10,473	2.07E-04	8.72E-03	1.77E-04	1.27E-03	1.27E-03	2.32E+02	1.65E+00	1.27E-03	1.39E+14	5.76E-05	1.33E-02
1,1,1-Trichloroethane	7,813	1.18E-02	4.94E-01	1.77E-04	1.34E-03	1.34E-03	5.97E+04	1.65E+00	1.34E-03	2.65E+13	5.76E-05	3.44E+00
1,2,3-Trichlorobenzene	13,153	7.50E-04	3.15E-02	1.77E-04	5.28E-04	5.28E-04	7.77E+02	1.65E+00	5.28E-04	8.40E+33	5.76E-05	4.47E-02
1,2,4-Trimethylbenzene	11,608	3.51E-03	1.47E-01	1.77E-04	1.04E-03	1.04E-03	1.53E+05	1.65E+00	1.04E-03	1.73E+17	5.76E-05	8.78E+00
1,3,5-Trimethylbenzene	11,591	3.35E-03	1.41E-01	1.77E-04	1.03E-03	1.03E-03	5.30E+04	1.65E+00	1.03E-03	2.22E+17	5.76E-05	3.05E+00
Vinyl chloride (chloroethene)	4,925	2.12E-02	8.92E-01	1.77E-04	1.81E-03	1.81E-03	6.26E+05	1.65E+00	1.81E-03	7.60E+09	5.76E-05	3.60E+01
m-Xylene	10,177	4.48E-03	1.88E-01	1.77E-04	1.20E-03	1.20E-03	7.25E+04	1.65E+00	1.20E-03	8.69E+14	5.76E-05	4.17E+00
o-Xylene	10,328	3.14E-03	1.32E-01	1.77E-04	1.49E-03	1.49E-03	1.31E+05	1.65E+00	1.49E-03	1.02E+12	5.76E-05	7.51E+00
Xylenes (total)	10,158	4.06E-03	1.71E-01	1.77E-04	1.22E-03	1.22E-03	3.69E+05	1.65E+00	1.22E-03	4.34E+14	5.76E-05	2.12E+01
Acenaphthene	16,041	7.12E-05	2.99E-03	1.77E-04	8.70E-04	8.70E-04	8.60E+02	1.65E+00	8.70E-04	4.08E+20	5.76E-05	4.95E-02
Anthracene	16,915	2.87E-05	1.21E-03	1.77E-04	9.28E-04	9.28E-04	3.16E+01	1.65E+00	9.28E-04	2.11E+19	5.76E-05	1.82E-03
Fluorene	16,167	2.90E-05	1.22E-03	1.77E-04	9.97E-04	9.97E-04	6.79E+01	1.65E+00	9.97E-04	9.69E+17	5.76E-05	3.91E-03
1-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	9.38E-04	2.08E+04	1.65E+00	9.38E-04	1.27E+19	5.76E-05	1.20E+00
2-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	9.38E-04	2.93E+04	1.65E+00	9.38E-04	1.27E+19	5.76E-05	1.68E+00
Naphthalene	12,844	2.59E-04	1.09E-02	1.77E-04	1.05E-03	1.05E-03	5.88E+03	1.65E+00	1.05E-03	1.21E+17	5.76E-05	3.38E-01
Phenanthrene	13,840	1.19E-05	5.02E-04	1.77E-04	1.61E-03	1.61E-03	3.40E+01	1.65E+00	1.61E-03	1.42E+11	5.76E-05	1.96E-03

Table E.19-HHRA-9
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Groundwater Concentration C_W (µg/L)	Chemical
71432	12.3	Benzene
104518	1.7	n-Butylbenzene
135988	2.1	sec-Butylbenzene
75150	9.35	Carbon disulfide
67663	1.5	Chloroform
74873	3.7	Methyl chloride
99876	3.7	p-Isopropyltoluene
132649	9.4	Dibenzofuran
75343	25.9	1,1-Dichloroethane
107062	1.36	1,2-Dichloroethane
75354	3.56	1,1-Dichloroethylene
100414	2.7	Ethylbenzene
98828	3.4	Cumene
108883	5.9	Toluene
1634044	2.5	MTBE
98953	19.5	Nitrobenzene
103651	2.2	n-Propylbenzene
127184	2.4	Tetrachloroethylene
71556	1.2	1,1,1-Trichloroethane
95636	12.2	1,2,4-Trimethylbenzene
108678	3.5	1,3,5-Trimethylbenzene
79016	3.73	Trichloroethylene
95476	17.3	o-Xylene
83329	51.5	Acenaphthene
120127	35	Anthracene
86737	82.6	Fluorene
90120	2116	1-Methylnaphthalene
91576	2192	2-Methylnaphthalene
91203	116	Naphthalene
85018	547	Phenanthrene

Table E.19-HHRA-9
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

ENTER Average soil/ groundwater temperature, T_S (^oC)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
16.7	15	1280	1280	0	0	A	SIL	SIL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	(Lookup Soil Parameters)				(Lookup Soil Parameters)
SIL	1.55	0.440	0.26					

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)
10	40	1000	1000	244	0.1	0.25

Table E.19-HHRA-10
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Zone Soil Water
Future Scenario
Solid Waste Management Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sand Missile Range
White Sand Missile Range, New Mexico

Chemical Name	Enthalpy of vaporization at ave. gw temp $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. gw temp H_{TS} (atm-m^3/mol)	Henry's law constant at ave. gw temp H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (µg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m^3)
Benzene	8,053	3.75E-03	1.58E-01	1.77E-04	1.51E-03	1.67E-04	1.05E-03	1.94E+03	1.65E+00	1.51E-03	7.57E+11	3.39E-05	6.58E-02
n-Butylbenzene	11,763	7.43E-03	3.13E-01	1.77E-04	9.77E-04	1.06E-04	6.76E-04	5.38E+02	1.65E+00	9.77E-04	2.26E+18	2.49E-05	1.34E-02
sec-Butylbenzene	107,393	7.72E-05	3.24E-03	1.77E-04	1.12E-03	4.89E-04	1.05E-03	6.78E+00	1.65E+00	1.12E-03	9.86E+15	3.38E-05	2.29E-04
Carbon disulfide	6,630	2.19E-02	9.22E-01	1.77E-04	1.78E-03	1.87E-04	1.22E-03	8.62E+03	1.65E+00	1.78E-03	1.18E+10	3.73E-05	3.21E-01
Chloroform	7,485	2.55E-03	1.07E-01	1.77E-04	1.78E-03	2.00E-04	1.25E-03	1.64E+02	1.65E+00	1.78E-03	1.11E+10	3.78E-05	6.20E-03
Methyl chloride	4,667	7.02E-03	2.95E-01	1.77E-04	2.16E-03	2.28E-04	1.48E-03	1.10E+03	1.65E+00	2.16E-03	2.05E+08	4.18E-05	4.61E-02
p-Isopropyltoluene	11,255	6.38E-03	2.68E-01	1.77E-04	1.34E-03	1.43E-04	9.25E-04	9.96E+02	1.65E+00	1.34E-03	2.29E+13	3.11E-05	3.10E-02
Dibenzofuran	87,214	1.86E-07	7.80E-06	1.77E-04	4.52E-02	1.19E-01	4.67E-02	7.33E-02	1.65E+00	4.52E-02	2.49E+00	1.52E-04	1.11E-05
1,1-Dichloroethane	7,376	3.92E-03	1.65E-01	1.77E-04	1.27E-03	1.42E-04	8.91E-04	4.27E+03	1.65E+00	1.27E-03	1.20E+14	3.03E-05	1.30E-01
1,2-Dichloroethane	8,449	6.49E-04	2.73E-02	1.77E-04	1.80E-03	2.42E-04	1.34E-03	3.71E+01	1.65E+00	1.80E-03	9.06E+09	3.94E-05	1.46E-03
1,1-Dichloroethylene	6,348	1.92E-02	8.05E-01	1.77E-04	1.54E-03	1.63E-04	1.06E-03	2.87E+03	1.65E+00	1.54E-03	4.34E+11	3.40E-05	9.76E-02
Ethylbenzene	10,078	4.83E-03	2.03E-01	1.77E-04	1.29E-03	1.40E-04	8.91E-04	5.42E+02	1.65E+00	1.29E-03	8.85E+13	3.04E-05	1.65E-02
Cumene	12,550	6.31E-01	2.65E+01	1.77E-04	1.11E-03	1.16E-04	7.60E-04	9.07E+04	1.65E+00	1.11E-03	1.32E+16	2.71E-05	2.46E+00
Toluene	9,082	4.27E-03	1.80E-01	1.77E-04	1.49E-03	1.63E-04	1.04E-03	1.06E+03	1.65E+00	1.49E-03	1.05E+12	3.36E-05	3.57E-02
MTBE	7,208	4.40E-04	1.85E-02	1.77E-04	1.78E-03	2.71E-04	1.37E-03	4.66E+01	1.65E+00	1.78E-03	1.11E+10	4.00E-05	1.86E-03
Nitrobenzene	13,299	1.26E-05	5.29E-04	1.77E-04	2.25E-03	2.65E-03	2.26E-03	1.03E+01	1.65E+00	2.25E-03	9.58E+07	5.21E-05	5.38E-04
n-Propylbenzene	11,281	6.18E-03	2.60E-01	1.77E-04	1.03E-03	1.12E-04	7.14E-04	5.77E+02	1.65E+00	1.03E-03	2.54E+17	2.59E-05	1.49E-02
Tetrachloroethylene	9,485	1.16E-02	4.88E-01	1.77E-04	1.23E-03	1.31E-04	8.48E-04	1.19E+03	1.65E+00	1.23E-03	3.48E+14	2.93E-05	3.49E-02
1,1,1-Trichloroethane	7,813	1.18E-02	4.94E-01	1.77E-04	1.34E-03	1.42E-04	9.19E-04	6.13E+02	1.65E+00	1.34E-03	2.65E+13	3.10E-05	1.90E-02
1,2,4-Trimethylbenzene	11,608	3.51E-03	1.47E-01	1.77E-04	1.04E-03	1.16E-04	7.28E-04	1.80E+03	1.65E+00	1.04E-03	1.73E+17	2.63E-05	4.73E-02
1,3,5-Trimethylbenzene	11,591	3.35E-03	1.41E-01	1.77E-04	1.03E-03	1.17E-04	7.27E-04	4.93E+02	1.65E+00	1.03E-03	2.22E+17	2.62E-05	1.29E-02
Trichloroethylene	8,474	6.82E-03	2.87E-01	1.77E-04	1.35E-03	1.46E-04	9.36E-04	1.07E+03	1.65E+00	1.35E-03	1.76E+13	3.14E-05	3.36E-02
o-Xylene	10,328	3.14E-03	1.32E-01	1.77E-04	1.49E-03	1.67E-04	1.05E-03	2.29E+03	1.65E+00	1.49E-03	1.02E+12	3.38E-05	7.72E-02
Acenaphthene	16,041	7.12E-05	2.99E-03	1.77E-04	8.70E-04	4.72E-04	8.32E-04	1.54E+02	1.65E+00	8.70E-04	4.08E+20	2.89E-05	4.46E-03
Anthracene	16,915	2.87E-05	1.21E-03	1.77E-04	9.28E-04	1.05E-03	9.33E-04	4.22E+01	1.65E+00	9.28E-04	2.11E+19	3.13E-05	1.32E-03
Fluorene	16,167	2.90E-05	1.22E-03	1.77E-04	9.97E-04	1.06E-03	1.00E-03	1.01E+02	1.65E+00	9.97E-04	9.69E+17	3.28E-05	3.31E-03
1-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	2.14E-04	7.93E-04	2.11E+04	1.65E+00	9.38E-04	1.27E+19	2.80E-05	5.89E-01
2-Methylnaphthalene	16,153	2.37E-04	9.95E-03	1.77E-04	9.38E-04	2.14E-04	7.93E-04	2.18E+04	1.65E+00	9.38E-04	1.27E+19	2.80E-05	6.10E-01
Naphthalene	12,844	2.59E-04	1.09E-02	1.77E-04	1.05E-03	2.12E-04	8.65E-04	1.26E+03	1.65E+00	1.05E-03	1.21E+17	2.97E-05	3.75E-02
Phenanthrene	13,840	1.19E-05	5.02E-04	1.77E-04	1.61E-03	1.90E-03	1.62E-03	2.74E+02	1.65E+00	1.61E-03	1.42E+11	4.40E-05	1.21E-02

Table E.19.HHRA-11

Estimates of Vapor Concentrations in Indoor Air Migrating from Total Soil and Saturated Vadose Zone Soil Water

Solid Waste Managment Unit 154 (SWMU 154)

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Soil (EPCs) [a] (mg/kg)		Exposure Point Concentration in Indoor Air due to Soil (EPCair_s) [b] (µg/m^3)	Exposure Point Concentration in Saturated Vadose Zone Soil Water (EPCgw) [a] (mg/L)		Exposure Point Concentration in Indoor Air due to Saturated Vadose Zone Soil Water (EPCair_gw) [b] (µg/m^3)
Volatile Organic Compounds						
Acetone	1.06E+00		4.10E-01	–		–
Benzene	7.51E-02		2.48E+00	1.23E-02		6.58E-02
Bromomethane	1.40E-01	m	7.79E+00	–		–
2-Butanone	1.06E-01		5.58E-02	–		–
n-Butylbenzene	6.55E-01		6.29E+00	1.72E-03		1.34E-02
sec-Butylbenzene	5.44E-01		6.28E-02	2.09E-03		2.29E-04
Carbon disulfide	6.80E-02	m	1.05E+01	9.35E-03	m	3.21E-01
CFC-11	6.60E-03	m	9.11E-01	–		–
Chlorinated fluorocarbon (Freon 113)	1.70E-01	m	7.62E+00	–		–
Chloroethane	7.70E-03	m	5.98E-01	–		–
Chloroform	–		–	1.53E-03		6.20E-03
Chloromethane	4.60E-02	m	3.81E+00	3.73E-03	m	4.61E-02
Cymene	1.06E+00		7.50E+00	3.71E-03		3.10E-02
Dibenzofuran	1.17E+00		3.95E-04	9.39E-03		1.11E-05
1,1-Dichloroethane	1.09E-02		3.85E+00	2.59E-02		1.30E-01
1,2-Dichloroethane	4.40E-02	m	3.51E-01	1.36E-03	m	1.46E-03
1,1-Dichloroethylene	4.80E-02	m	6.36E+00	3.56E-03	m	9.76E-02
Dichloromethane	8.37E-03		1.64E-01	–		–
Ethylbenzene	3.53E-01		5.61E+00	2.67E-03		1.65E-02
Isopropylbenzene	3.71E-01		7.61E+00	3.42E-03		2.46E+00
Methylbenzene	6.15E-03		1.68E+00	5.92E-03	m	3.57E-02
Methyl tert-Butyl Ether (MTBE)	–		–	2.52E-03		1.86E-03
Nitrobenzene	–		–	1.95E-02	m	5.38E-04
n-Propylbenzene	5.00E-01		7.18E+00	2.22E-03		1.49E-02
Tetrachloroethene	9.90E-02	m	6.08E+00	2.44E-03	m	3.49E-02
1,1,2,2-Tetrachloroethane	8.20E-03	m	1.33E-02	–		–
1,1,1-Trichloroethane	4.71E-02		3.44E+00	1.24E-03		1.90E-02
1,2,3-Trichlorobenzene	7.00E-02	m	4.47E-02	–		–
1,2,4-Trimethylbenzene	2.29E+00		8.78E+00	1.22E-02		4.73E-02
1,3,5-Trimethylbenzene	8.32E-01		3.05E+00	3.50E-03		1.29E-02
Trichloroethylene	–		–	3.73E-03		3.36E-02
Vinyl chloride	2.10E-01	m	3.60E+01	–		–
m,p-Xylene	3.08E-01		4.17E+00	–		–
o-Xylene	7.19E-01		7.51E+00	1.73E-02	m	7.72E-02
Xylenes	9.25E-01		2.12E+01	–		–
Acenaphthene	4.05E-01		4.95E-02	5.15E-02		4.46E-03
Anthracene	1.17E+00		1.82E-03	3.50E-02		1.32E-03
Fluorene	1.16E+00		3.91E-03	8.26E-02		3.31E-03
1-Methylnaphthalene	9.17E+00		1.20E+00	2.12E+00		5.89E-01
2-Methylnaphthalene	1.29E+01		1.68E+00	2.19E+00		6.10E-01
Naphthalene	1.71E+00		3.38E-01	1.16E-01		3.75E-02
Phenanthrene	3.03E+00		1.96E-03	5.47E-01		1.21E-02

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.

USEPA. 2004a. Spreadsheet for the Johnson and Ettinger Model - Soil Screen. Version 3.1. Last modified 02/2004.

USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:

—	Not applicable.
µg/m^3	Micrograms per cubic meter.
mg/kg	Milligrams per kilogram.
mg/L	Milligrams per liter.
m	Maximum.

[a] EPCs are presented in table Table E.19.HHRA-6.

[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004a,b), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002a).

Table E.19.HHRA-12
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Acetone	4.10E-01		NA	NA	–	3.1E+01	3E-06	<1%
Benzene	2.48E+00		7.80E-03	1.4E-06	8%	3.0E-02	2E-02	2%
Bromomethane	7.79E+00	m	NA	NA	–	5.0E-03	3E-01	42%
2-Butanone	5.58E-02		NA	NA	–	5.0E+00	2E-06	<1%
n-Butylbenzene	6.29E+00		NA	NA	–	1.0E+00	1E-03	<1%
sec-Butylbenzene	6.28E-02		NA	NA	–	4.0E-01	3E-05	<1%
Carbon disulfide	1.05E+01	m	NA	NA	–	7.0E-01	3E-03	<1%
CFC-11	9.11E-01	m	NA	NA	–	7.0E-01	3E-04	<1%
Chlorinated fluorocarbon (Freon 113)	7.62E+00	m	NA	NA	–	3.0E+01	5E-05	<1%
Chloroethane	5.98E-01	m	NA	NA	–	1.0E+01	1E-05	<1%
Chloromethane	3.81E+00	m	NA	NA	–	9.0E-02	9E-03	1%
Cymene	7.50E+00		NA	NA	–	NA	NA	–
Dibenzofuran	3.95E-04		NA	NA	–	NA	NA	–
1,1-Dichloroethane	3.85E+00		1.60E-03	4.5E-07	3%	NA	NA	–
1,2-Dichloroethane	3.51E-01	m	2.60E-02	6.7E-07	4%	2.4E+00	3E-05	<1%
1,1-Dichloroethylene	6.36E+00	m	NA	NA	–	2.0E-01	7E-03	<1%
Dichloromethane	1.64E-01		4.70E-04	5.7E-09	<1%	1.0E+00	3E-05	<1%
Ethylbenzene	5.61E+00		NA	NA	–	1.0E+00	1E-03	<1%
Isopropylbenzene	7.61E+00		NA	NA	–	4.0E-01	4E-03	<1%
Methylbenzene	1.68E+00		NA	NA	–	5.0E+00	7E-05	<1%
n-Propylbenzene	7.18E+00		NA	NA	–	1.0E+00	1E-03	<1%
Tetrachloroethene	6.08E+00	m	5.90E-03	2.6E-06	16%	2.7E-01	5E-03	<1%
1,1,2,2-Tetrachloroethane	1.33E-02	m	5.80E-02	5.7E-08	<1%	NA	NA	–
1,1,1-Trichloroethane	3.44E+00		NA	NA	–	5.0E+00	1E-04	<1%
1,2,3-Trichlorobenzene	4.47E-02	m	NA	NA	–	NA	NA	–
1,2,4-Trimethylbenzene	8.78E+00		NA	NA	–	7.0E-03	3E-01	33%
1,3,5-Trimethylbenzene	3.05E+00		NA	NA	–	NA	NA	–
Vinyl chloride	3.60E+01	m	4.40E-03	1.2E-05	69%	1.0E-01	7E-02	10%
m,p-Xylene	4.17E+00		NA	NA	–	7.0E-01	1E-03	<1%
o-Xylene	7.51E+00		NA	NA	–	7.0E-01	2E-03	<1%
Xylenes	2.12E+01		NA	NA	–	1.0E-01	4E-02	6%
Acenaphthene	4.95E-02		NA	NA	–	NA	NA	–
Anthracene	1.82E-03		NA	NA	–	NA	NA	–
Fluorene	3.91E-03		NA	NA	–	NA	NA	–
1-Methylnaphthalene	1.20E+00		NA	NA	–	NA	NA	–
2-Methylnaphthalene	1.68E+00		NA	NA	–	NA	NA	–

Table E.19.HHRA-12
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
Naphthalene	3.38E-01	NA	NA	–	3.0E-03	2E-02	3%
Phenanthrene	1.96E-03	NA	NA	–	NA	NA	–
		Total ELCR	2E-05	NA	Total HI	0.8	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.08	HI (gastrointestinal tract) = NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.05	HI (nasal, lung) = 0.3
NA - Not available	HI (blood) =	0.02	HI (eyes, nails, hair, skin) = NA
NR - None reported	HI (fetus, developmental) =	0.001	HI (NA, NR) = 0.3

[a] From Table E.19.HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

$ELCRi = (EPCair \times 0.001 \times 8 \times 0.042 \times 225 \times 25 \times URF) / (25{,}550)$

$HQi = (EPCair \times 0.001 \times 8 \times 0.042 \times 225 \times 25) / (9{,}125 \times RfC)$

Table E.19.HHRA-13
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk ELCRi	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard HQi	Percent Total HI
Volatile Organic Compounds								
Acetone	4.10E-01		NA	NA	–	3.1E+01	1E-05	<1%
Benzene	2.48E+00		7.80E-03	8E-06	8%	3.0E-02	8E-02	2%
Bromomethane	7.79E+00	m	NA	NA	–	5.0E-03	1E+00	42%
2-Butanone	5.58E-02		NA	NA	–	5.0E+00	1E-05	<1%
n-Butylbenzene	6.29E+00		NA	NA	–	1.0E+00	6E-03	<1%
sec-Butylbenzene	6.28E-02		NA	NA	–	4.0E-01	2E-04	<1%
Carbon disulfide	1.05E+01	m	NA	NA	–	7.0E-01	1E-02	<1%
CFC-11	9.11E-01	m	NA	NA	–	7.0E-01	1E-03	<1%
Chlorinated fluorocarbon (Freon 113)	7.62E+00	m	NA	NA	–	3.0E+01	2E-04	<1%
Chloroethane	5.98E-01	m	NA	NA	–	1.0E+01	6E-05	<1%
Chloromethane	3.81E+00	m	NA	NA	–	9.0E-02	4E-02	1%
Cymene	7.50E+00		NA	NA	–	NA	NA	–
Dibenzofuran	3.95E-04		NA	NA	–	NA	NA	–
1,1-Dichloroethane	3.85E+00		1.60E-03	3E-06	3%	NA	NA	–
1,2-Dichloroethane	3.51E-01	m	2.60E-02	4E-06	4%	2.4E+00	1E-04	<1%
1,1-Dichloroethylene	6.36E+00	m	NA	NA	–	2.0E-01	3E-02	<1%
Dichloromethane	1.64E-01		4.70E-04	3E-08	<1%	1.0E+00	2E-04	<1%
Ethylbenzene	5.61E+00		NA	NA	–	1.0E+00	5E-03	<1%
Isopropylbenzene	7.61E+00		NA	NA	–	4.0E-01	2E-02	<1%
Methylbenzene	1.68E+00		NA	NA	–	5.0E+00	3E-04	<1%
n-Propylbenzene	7.18E+00		NA	NA	–	1.0E+00	7E-03	<1%
Tetrachloroethene	6.08E+00	m	5.90E-03	1E-05	16%	2.7E-01	2E-02	<1%
1,1,2,2-Tetrachloroethane	1.33E-02	m	5.80E-02	3E-07	<1%	NA	NA	–
1,1,1-Trichloroethane	3.44E+00		NA	NA	–	5.0E+00	7E-04	<1%
1,2,3-Trichlorobenzene	4.47E-02	m	NA	NA	–	NA	NA	–
1,2,4-Trimethylbenzene	8.78E+00		NA	NA	–	7.0E-03	1E+00	33%
1,3,5-Trimethylbenzene	3.05E+00		NA	NA	–	NA	NA	–
Vinyl chloride	3.60E+01	m	4.40E-03	7E-05	69%	1.0E-01	3E-01	10%
m,p-Xylene	4.17E+00		NA	NA	–	7.0E-01	6E-03	<1%
o-Xylene	7.51E+00		NA	NA	–	7.0E-01	1E-02	<1%
Xylenes	2.12E+01		NA	NA	–	1.0E-01	2E-01	6%
Acenaphthene	4.95E-02		NA	NA	–	NA	NA	–
Anthracene	1.82E-03		NA	NA	–	NA	NA	–

Table E.19.HHRA-13
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
Fluorene	3.91E-03	NA	NA	–	NA	NA	–
1-Methylnaphthalene	1.20E+00	NA	NA	–	NA	NA	–
2-Methylnaphthalene	1.68E+00	NA	NA	–	NA	NA	–
Naphthalene	3.38E-01	NA	NA	–	3.0E-03	1E-01	3%
Phenanthrene	1.96E-03	NA	NA	–	NA	NA	–
		Total ELCR	9E-05	100%	Total HI **	4	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.4	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.3	HI (nasal, lung) =	2
NA - Not available	HI (blood) =	0.08	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	0.005	HI (NA, NR) =	1

[a] From Table E.19.HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.19.HHRA-14
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Constituent	EPCair [a] (µg/m^3)		CANCER RISK URF (mg/m^3)$^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
				ELCRi			HQi	
Volatile Organic Compounds								
Benzene	6.58E-02		7.80E-03	3.8E-08	43%	3.0E-02	5E-04	7%
n-Butylbenzene	1.34E-02		NA	NA	–	1.0E+00	3E-06	<1%
sec-Butylbenzene	2.29E-04		NA	NA	–	4.0E-01	1E-07	<1%
Carbon disulfide	3.21E-01	m	NA	NA	–	7.0E-01	9E-05	2%
Chloroform	6.20E-03		2.30E-02	1.0E-08	12%	9.8E-02	1E-05	<1%
Chloromethane	4.61E-02	m	NA	NA	–	9.0E-02	1E-04	2%
Cymene	3.10E-02		NA	NA	–	NA	NA	–
Dibenzofuran	1.11E-05		NA	NA	–	NA	NA	–
1,1-Dichloroethane	1.30E-01		1.60E-03	1.5E-08	17%	NA	NA	–
1,2-Dichloroethane	1.46E-03	m	2.60E-02	2.8E-09	3%	2.4E+00	1E-07	<1%
1,1-Dichloroethylene	9.76E-02	m	NA	NA	–	2.0E-01	1E-04	2%
Ethylbenzene	1.65E-02		NA	NA	–	1.0E+00	3E-06	<1%
Isopropylbenzene	2.46E+00		NA	NA	–	4.0E-01	1E-03	21%
Methylbenzene	3.57E-02	m	NA	NA	–	5.0E+00	1E-06	<1%
Methyl tert-Butyl Ether (MTBE)	1.86E-03		2.60E-04	3.6E-11	<1%	3.0E+00	1E-07	<1%
Nitrobenzene	5.38E-04	m	4.00E-02	1.6E-09	2%	9.0E-03	1E-05	<1%
n-Propylbenzene	1.49E-02		NA	NA	–	1.0E+00	3E-06	<1%
Tetrachloroethene	3.49E-02	m	5.90E-03	1.5E-08	17%	2.7E-01	3E-05	<1%
1,1,1-Trichloroethane	1.90E-02		NA	NA	–	5.0E+00	8E-07	<1%
1,2,4-Trimethylbenzene	4.73E-02		NA	NA	–	7.0E-03	1E-03	23%
1,3,5-Trimethylbenzene	1.29E-02		NA	NA	–	NA	NA	–
Trichloroethylene	3.36E-02		2.00E-03	4.9E-09	6%	NA	NA	–
o-Xylene	7.72E-02	m	NA	NA	–	7.0E-01	2E-05	<1%
Acenaphthene	4.46E-03		NA	NA	–	NA	NA	–
Anthracene	1.32E-03		NA	NA	–	NA	NA	–
Fluorene	3.31E-03		NA	NA	–	NA	NA	–
1-Methylnaphthalene	5.89E-01		NA	NA	–	NA	NA	–
2-Methylnaphthalene	6.10E-01		NA	NA	–	NA	NA	–
Naphthalene	3.75E-02		NA	NA	–	3.0E-03	3E-03	42%
Phenanthrene	1.21E-02		NA	NA	–	NA	NA	–
			Total ELCR	9E-08	100%	Total HI	0.006	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.001	HI (gastrointestinal tract) = NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.0002	HI (nasal, lung) = 0.003
NA - Not available	HI (blood) =	0.0005	HI (eyes, nails, hair, skin) = NA
NR - None reported	HI (fetus, developmental) =	0.000003	HI (NA, NR) = 0.001

Table E.19.HHRA-14
Risk and Hazard Calculations for Hypothetical Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Saturated Vadose Soil Water
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

[a] From Table E.19.HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.19.HHRA-15
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapors in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child and Adult

Constituent	EPCair [a] ($\mu g/m^3$)		CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk ELCRi	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard HQi	Percent Total HI
Volatile Organic Compounds								
Benzene	6.58E-02		7.80E-03	2E-07	43%	3.0E-02	2E-03	7%
n-Butylbenzene	1.34E-02		NA	NA	–	1.0E+00	1E-05	<1%
sec-Butylbenzene	2.29E-04		NA	NA	–	4.0E-01	5E-07	<1%
Carbon disulfide	3.21E-01	m	NA	NA	–	7.0E-01	4E-04	2%
Chloroform	6.20E-03		2.30E-02	6E-08	12%	9.8E-02	6E-05	<1%
Chloromethane	4.61E-02	m	NA	NA	–	9.0E-02	5E-04	2%
Cymene	3.10E-02		NA	NA	–	NA	NA	–
Dibenzofuran	1.11E-05		NA	NA	–	NA	NA	–
1,1-Dichloroethane	1.30E-01		1.60E-03	9E-08	17%	NA	NA	–
1,2-Dichloroethane	1.46E-03	m	2.60E-02	2E-08	3%	2.4E+00	6E-07	<1%
1,1-Dichloroethylene	9.76E-02	m	NA	NA	–	2.0E-01	5E-04	2%
Ethylbenzene	1.65E-02		NA	NA	–	1.0E+00	2E-05	<1%
Isopropylbenzene	2.46E+00		NA	NA	–	4.0E-01	6E-03	21%
Methylbenzene	3.57E-02	m	NA	NA	–	5.0E+00	7E-06	<1%
Methyl tert-Butyl Ether (MTBE)	1.86E-03		2.60E-04	2E-10	<1%	3.0E+00	6E-07	<1%
Nitrobenzene	5.38E-04	m	4.00E-02	9E-09	2%	9.0E-03	6E-05	<1%
n-Propylbenzene	1.49E-02		NA	NA	–	1.0E+00	1E-05	<1%
Tetrachloroethene	3.49E-02	m	5.90E-03	8E-08	17%	2.7E-01	1E-04	<1%
1,1,1-Trichloroethane	1.90E-02		NA	NA	–	5.0E+00	4E-06	<1%
1,2,4-Trimethylbenzene	4.73E-02		NA	NA	–	7.0E-03	6E-03	23%
1,3,5-Trimethylbenzene	1.29E-02		NA	NA	–	NA	NA	–
Trichloroethylene	3.36E-02		2.00E-03	3E-08	6%	NA	NA	–
o-Xylene	7.72E-02	m	NA	NA	–	7.0E-01	1E-04	<1%
Acenaphthene	4.46E-03		NA	NA	–	NA	NA	–
Anthracene	1.32E-03		NA	NA	–	NA	NA	–
Fluorene	3.31E-03		NA	NA	–	NA	NA	–
1-Methylnaphthalene	5.89E-01		NA	NA	–	NA	NA	–
2-Methylnaphthalene	6.10E-01		NA	NA	–	NA	NA	–
Naphthalene	3.75E-02		NA	NA	–	3.0E-03	1E-02	42%
Phenanthrene	1.21E-02		NA	NA	–	NA	NA	–
			Total ELCR	5E-07	100%	Total HI	0.03	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.006	HI (gastrointestinal tract) = NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.001	HI (nasal, lung) = 0.01
NA - Not available	HI (blood) =	0.002	HI (eyes, nails, hair, skin) = NA
NR - None reported	HI (fetus, developmental) =	0.00002	HI (NA, NR) = 0.006

Table E.19.HHRA-15
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapors in Indoor Air Migrating from Total Soil
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child and Adult

[a] From Table E.19.HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Unit risk factor	mg/m³	Milligrams per cubic meter.
ELCR	Excess lifetime cancer risk.	µg/m³	Micrograms per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	RfC	Reference concentration.
HQ	Hazard quotient for non-cancer effects.		

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.19.HHRA-16
Summary of Calculated Human Health Risks and Hazards
Solid Waste Managment Unit 154 (SWMU 154)
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Future Commercial/Industrial Worker Receptor		
Vapor Migration from Soil to Indoor Air	2E-05	0.8
Vapor Migration from Saturated Vadose Zone Soil Water to Indoor Air	9E-08	0.006
TOTAL SITE RISKS:	2E-05	0.8
Hypothetical Future Resident Receptor (Adult and Child)		
Vapor Migration from Soil to Indoor Air	9E-05	**4**
Vapor Migration from Saturated Vadose Zone Soil Water to Indoor Air	5E-07	0.03
TOTAL SITE RISKS:	1E-04	**4**

[a] Cancer risk estimates exceeding $1x10^{-4}$ and non-cancer hazard estimates exceeding one are in bold.
[b] For HIs exceeding 1, target organ HIs were calculated.

Target Organ HI	Future Commerical/Industrial Worker	Future Child and Adult Resident
HI (liver, kidney) =	0.09	0.4
HI (CNS, whole body, immune system) =	0.06	0.3
HI (blood) =	0.02	0.08
HI (fetus, developmental) =	0.001	0.005
HI (gastrointestinal tract) =	NA	NA
HI (nasal, lung) =	0.3	2
HI (eyes, nails, hair, skin) =	NA	NA
HI (NA, NR) =	0.3	1

CNS Central nervous system.
HI Hazard index.
NA Not available.
NR Not reported.

Table E.19.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	1	0	–	0.1		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	1	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	1	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Bis(2-chloroethyl)ether	0	/	1	0	–	0.3		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
Bromomethane	0	/	1	0	–	0.005		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	1	0	–	0.1		no	89.6	*R5*	NA	no	ND
Carbon disulfide	0	/	1	0	–	0.005		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	1	0	–	0.005		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	1	0	–	0.01		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	1	0	–	0.02		no	39.5	*R5*	NA	no	ND
Chlorobenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	1	0	–	0.005		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	1	0	–	0.01		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	1	0	–	0.01		no	NA		NA	no	ND
Chloroform	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	1	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	1	0	–	0.33	^	no	0.243	*R5*	NA	no	ND
Dibromomethane	0	/	1	0	–	0.02		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	1	0	–	0.3		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	1	0	–	0.3		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	1	0	–	0.3		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	1	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	0	/	1	0	–	0.005		no	20.1	*R5*	NA	no	ND
1,2-Dichloroethane	0	/	1	0	–	0.005		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	1	0	–	0.005		no	8.28	*R5*	NA	no	ND
trans-1,2-Dichloroethene	0	/	1	0	–	0.005		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	1	0	–	0.005		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	1	0	–	0.005		no	700	*R4*	NA	no	ND
cis-1,3-Dichloropropene	0	/	1	0	–	0.005		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	1	0	–	0.005		no	0.398	*R5*	NA	no	ND
Ethanol	0	/	1	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	1	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Iodomethane	0	/	1	0	–	0.02		no	1.23	*R5*	NA	no	ND
Methyl n-butyl ketone	0	/	1	0	–	0.05		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	1	0	–	0.05		no	443	*R5*	NA	no	ND
Nitrobenzene	0	/	1	0	–	0.3		no	40	*R4*	NA	no	ND
Styrene (monomer)	0	/	1	0	–	0.005		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	1	0	–	0.005		no	9.92	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	1	0	–	0.005		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	1	0	–	0.005		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	1	0	–	0.005		no	28.6	*R5*	NA	no	ND
1,2,3-Trichloropropane	0	/	1	0	–	0.02		no	3.36	*R5*	NA	no	ND

Table E.19.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
1,2,4-Trichlorobenzene	0	/	1	0	–	0.3		no	11.1	*R5*	NA	no	ND
Trichloroethylene	0	/	1	0	–	0.005	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	1	0	–	0.01		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	1	0	–	0.01		no	0.01	*R4*	NA	no	ND
Xylenes	0	/	1	0	–	0.005		no	0.05	*R4*	NA	no	ND
Semi Volatile Organic Compounds													
Benzidine	0	/	1	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	1	0	–	2		no	NA		NA	no	ND
Benzyl butyl phthalate	0	/	1	0	–	0.3	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	1	0	–	0.3		no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
4-Chloro-3-methylphenol	0	/	1	0	–	0.7		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	1	0	–	0.3		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	1	0	–	0.7	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	1	0	–	0.3		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	1	0	–	0.3		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	1	0	–	0.3	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	1	0	–	2		no	20	*R4*	NA	no	ND
2,4-Dinitrotoluene	0	/	1	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	1	0	–	0.3		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	1	0	–	0.3		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	1	0	–	0.3	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	1	0	–	0.3	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	1	0	–	0.3		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	1	0	–	0.33	^	no	0.0000321	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	1	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Nitrophenol	0	/	1	0	–	0.3		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	1	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	1	0	–	0.3		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Pentachlorophenol	0	/	1	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	1	0	–	0.3		no	120	*R5*	NA	no	ND
2,4,6-Trichlorophenol	0	/	1	0	–	0.3		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	1	0	–	0.3		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	1	0	–	0.3		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	1	0	–	0.33		no	682	*R5*	NA	no	ND
Anthracene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	1	0	–	0.3		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	1	0	–	0.3		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	1	0	–	0.3		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	1	0	–	0.3		no	4.73	*R5*	NA	no	ND

Table E.19.ERA-1
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
2-Chloronaphthalene	0	/	1	0	–	0.3	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	1	0	–	0.3		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	1	0	–	0.3		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	1	0	–	0.3		no	109	*R5*	NA	no	ND
Naphthalene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	1	0	–	0.3	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
Petroleum hydrocarbons	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)	0	/	1	0	–	13		no	10,000	*API*	NA	no	ND
Explosives													
2,6-Dinitrotoluene	0	/	1	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Arsenic	0	/	1	0	–	0.55		YES	18	*EcoSSL*	NA	no	ND
Barium	0	/	1	0	–	99		YES	330	*EcoSSL*	NA	no	ND
Cadmium	0	/	1	0	–	2.5	^	no	0.36	*EcoSSL*	NA	no	ND
Lead	0	/	1	0	–	25	^	no	11	*EcoSSL*	NA	no	ND
Mercury	0	/	1	0	–	0.08		no	0.1	*R4*	NA	no	ND
Selenium	0	/	1	0	–	0.55	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	1	0	–	5	^	no	4.2	*EcoSSL*	NA	no	ND

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.19.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
Volatile Organic Compounds													
Acetone	0	/	18	0	–	0.2		no	2.5	*R5*	NA	no	ND
Acrolein	0	/	3	0	–	0.2		no	5.27	*R5*	NA	no	ND
Acrylonitrile	0	/	3	0	–	0.1		no	1,000	*R4*	NA	no	ND
Benzene	1	/	18	5.56	0.0093	0.072		no	0.05	*R4*	0.2	no	HQ ≤ 1
Bis(2-chloroethyl)ether	0	/	7	0	–	0.5		no	23.7	*R5*	NA	no	ND
Bis(2-chloroisopropyl)ether	0	/	7	0	–	0.5		no	NA		NA	no	ND
Bromobenzene	0	/	6	0	–	0.05		no	NA		NA	no	ND
Bromodichloromethane	0	/	9	0	–	0.033		no	0.54	*R5*	NA	no	ND
Bromomethane	0	/	18	0	–	0.067		no	0.235	*R5*	NA	no	ND
2-Butanone	0	/	18	0	–	1		no	89.6	*R5*	NA	no	ND
n-Butylbenzene	0	/	6	0	–	0.05		no	NA		NA	no	ND
sec-Butylbenzene	1	/	6	16.7	0.095	0.05		no	NA		NA	**YES**	NSL
tert-Butylbenzene	0	/	6	0	–	0.05		no	NA		NA	no	ND
Carbon disulfide	0	/	12	0	–	0.022		no	0.09412	*R5*	NA	no	ND
Carbon tetrachloride	0	/	18	0	–	0.05		no	1,000	*R4*	NA	no	ND
CFC-11	0	/	10	0	–	0.05		no	16.4	*R5*	NA	no	ND
CFC-12	0	/	9	0	–	0.25		no	39.5	*R5*	NA	no	ND
Chlorinated fluorocarbon (Freon 113)	0	/	6	0	–	0.05		no	NA		NA	no	ND
Chlorobenzene	0	/	18	0	–	0.05		no	0.05	*R4*	NA	no	ND
Chlorodibromomethane	0	/	18	0	–	0.05		no	2.05	*R5*	NA	no	ND
Chloroethane	0	/	18	0	–	0.096		no	NA		NA	no	ND
2-Chloroethyl vinyl ether	0	/	18	0	–	0.5		no	NA		NA	no	ND
Chloroform	0	/	18	0	–	0.05	^	no	0.001	*R4*	NA	no	ND
Chloromethane	0	/	7	0	–	0.01		no	10.4	*R5*	NA	no	ND
2-Chlorophenol	0	/	7	0	–	0.5	^	no	0.243	*R5*	NA	no	ND
2-Chlorotoluene	0	/	6	0	–	0.05		no	NA		NA	no	ND
4-Chlorotoluene	0	/	6	0	–	0.05		no	NA		NA	no	ND
Cymene	0	/	6	0	–	0.05		no	NA		NA	no	ND
Dibenzofuran	0	/	4	0	–	0.5		no	600	*R4s*	NA	no	ND
1,2-Dibromo-3-chloropropane (DBCP)	0	/	6	0	–	0.05	^	no	0.0352	*R5*	NA	no	ND
1,2-Dibromoethane	0	/	6	0	–	0.05		no	1.23	*R5*	NA	no	ND
Dibromomethane	0	/	9	0	–	0.05		no	65	*R5*	NA	no	ND
1,2-Dichlorobenzene	0	/	14	0	–	0.5		no	2.96	*R5*	NA	no	ND
m-Dichlorobenzene	0	/	14	0	–	0.5		no	37.7	*R5*	NA	no	ND
1,4-Dichlorobenzene	0	/	14	0	–	0.5		no	0.546	*R5*	NA	no	ND
1,4 Dichloro-2-butene	0	/	3	0	–	0.02		no	NA		NA	no	ND
1,1-Dichloroethane	1	/	18	5.56	0.044	0.05		no	20.1	*R5*	0.002	no	HQ ≤ 1
1,2-Dichloroethane	0	/	18	0	–	0.05		no	0.4	*R4*	NA	no	ND
1,1-Dichloroethylene	0	/	18	0	–	0.05		no	8.28	*R5*	NA	no	ND
cis-1,2-Dichloroethene	0	/	15	0	–	0.05		no	NA		NA	no	ND
trans-1,2-Dichloroethene	0	/	18	0	–	0.05		no	0.784	*R5*	NA	no	ND
Dichloromethane	0	/	18	0	–	0.05		no	2	*R4*	NA	no	ND
1,2-Dichloropropane	0	/	18	0	–	0.067		no	700	*R4*	NA	no	ND
1,3-Dichloropropane	0	/	6	0	–	0.05		no	700	*R4s*	NA	no	ND
2,2-Dichloropropane	0	/	6	0	–	0.05		no	700	*R4s*	NA	no	ND
1,1-Dichloropropene	0	/	6	0	–	0.05		no	NA		NA	no	ND

Table E.19.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Maximum Concentration Detect (mg/kg)	Maximum Concentration SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Ecological Screening Level (ESLs) [b] (mg/kg) *Source*	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	SLERA COPEC? [d] Rational
cis-1,3-Dichloropropene	0	/	18	0	–	0.05		no	0.398	*R5*	NA	no	ND
trans-1,3-Dichloropropene	0	/	18	0	–	0.05		no	0.398	*R5*	NA	no	ND
Diethyl ether	0	/	6	0	–	0.2		no	NA		NA	no	ND
Ethanol	0	/	3	0	–	1		no	NA		NA	no	ND
Ethyl methacrylate	0	/	3	0	–	0.02		no	30	*R5*	NA	no	ND
Ethylbenzene	1	/	18	5.56	0.38	0.05		no	0.05	*R4*	8	**YES**	HQ > 1
Iodomethane	0	/	3	0	–	0.02		no	1.23	*R5*	NA	no	ND
Isopropylbenzene	1	/	6	16.7	0.65	0.05		no	NA		NA	**YES**	NSL
Methyl n-butyl ketone	0	/	18	0	–	0.2		no	12.6	*R5*	NA	no	ND
Methylbenzene	0	/	18	0	–	0.058	^	no	0.05	*R4*	NA	no	ND
4-Methyl-2-pentanone (MIBK)	0	/	18	0	–	0.2		no	443	*R5*	NA	no	ND
Methyl tert-butyl ether (MTBE)	0	/	10	0	–	0.2		no	NA		NA	no	ND
Nitrobenzene	0	/	3	0	–	0.3		no	40	*R4*	NA	no	ND
n-Propylbenzene	1	/	6	16.7	0.12	0.05		no	NA		NA	**YES**	NSL
Styrene (monomer)	0	/	18	0	–	0.05		no	0.1	*R4*	NA	no	ND
Tetrachloroethene	0	/	8	0	–	0.077		no	9.92	*R5*	NA	no	ND
1,1,1,2-Tetrachloroethane	0	/	7	0	–	0.053		no	225	*R5*	NA	no	ND
1,1,2,2-Tetrachloroethane	0	/	17	0	–	0.05		no	0.127	*R5*	NA	no	ND
1,1,1-Trichloroethane	0	/	18	0	–	0.05		no	29.8	*R5*	NA	no	ND
1,1,2-Trichloroethane	0	/	18	0	–	0.053		no	28.6	*R5*	NA	no	ND
1,2,3-Trichlorobenzene	0	/	6	0	–	0.05		no	11.1	*R5s*	NA	no	ND
1,2,3-Trichloropropane	0	/	9	0	–	0.05		no	3.36	*R5*	NA	no	ND
1,2,4-Trichlorobenzene	0	/	13	0	–	0.5		no	11.1	*R5*	NA	no	ND
1,2,4-Trimethylbenzene	1	/	6	16.7	0.74	0.05		no	0.05	*R4s*	10	**YES**	HQ > 1
1,3,5-Trimethylbenzene	1	/	6	16.7	0.851	0.05		no	0.05	*R4s*	20	**YES**	HQ > 1
Trichloroethylene	0	/	8	0	–	0.11	^	no	0.001	*R4*	NA	no	ND
Vinyl acetate	0	/	12	0	–	0.067		no	12.7	*R5*	NA	no	ND
Vinyl chloride	0	/	18	0	–	0.1	^	no	0.01	*R4*	NA	no	ND
m,p-Xylene	0	/	7	0	–	0.077	^	no	0.05	*R4s*	NA	no	ND
o-Xylene	0	/	7	0	–	0.05		no	0.05	*R4s*	NA	no	ND
Xylenes	1	/	11	9.09	0.05	0.007		no	0.05	*R4*	1	no	HQ ≤ 1
Semi Volatile Organic Compounds													
Benzidine	0	/	3	0	–	1.7		no	NA		NA	no	ND
Benzoic acid	0	/	7	0	–	2		no	NA		NA	no	ND
Benzyl alcohol	0	/	4	0	–	0.9		no	65.8	*R5*	NA	no	ND
Benzyl butyl phthalate	0	/	7	0	–	0.5	^	no	0.23889	*R5*	NA	no	ND
Bis(2-chloroethoxy)methane	0	/	7	0	–	0.5	^	no	0.302	*R5*	NA	no	ND
Bis(2-ethylhexyl)phthalate	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
4-Bromophenyl phenyl ether	0	/	7	0	–	0.5		no	NA		NA	no	ND
p-Chloroaniline	0	/	4	0	–	0.9		no	1.1	*R5*	NA	no	ND
4-Chloro-3-methylphenol	0	/	7	0	–	0.9		no	7.95	*R5*	NA	no	ND
4-Chlorophenyl phenyl ether	0	/	7	0	–	0.5		no	NA		NA	no	ND
3,3'-Dichlorobenzidine	0	/	7	0	–	0.9	^	no	0.646	*R5*	NA	no	ND
2,4-Dichlorophenol	0	/	7	0	–	0.5		no	87.5	*R5*	NA	no	ND
Diethyl phthalate	0	/	7	0	–	0.5		no	100	*R4*	NA	no	ND
2,4-Dimethylphenol	0	/	7	0	–	0.5	^	no	0.01	*R5*	NA	no	ND
2,4-Dinitrophenol	0	/	7	0	–	2		no	20	*R4*	NA	no	ND

Table E.19.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
2,4-Dinitrotoluene	0	/	3	0	–	0.3		no	1.28	*R5*	NA	no	ND
Dimethyl phthalate	0	/	7	0	–	0.5		no	200	*R4*	NA	no	ND
Di-n-butyl phthalate	0	/	7	0	–	0.5		no	200	*R4*	NA	no	ND
Di-n-octyl phthalate	0	/	7	0	–	0.5		no	709	*R5*	NA	no	ND
Hexachloro-1,3-butadiene	0	/	13	0	–	0.5	^	no	0.0398	*R5*	NA	no	ND
Hexachlorobenzene	0	/	7	0	–	0.5	^	no	0.0025	*R4*	NA	no	ND
Hexachlorocyclopentadiene	0	/	7	0	–	0.5		no	10	*R4*	NA	no	ND
Hexachloroethane	0	/	7	0	–	0.5		no	0.596	*R5*	NA	no	ND
Methanamine, n-methyl-n-nitroso	0	/	3	0	–	0.33	^	no	3.21E-05	*R5*	NA	no	ND
2-Methyl-4,6-dinitrophenol	0	/	7	0	–	2	^	no	0.144	*R5*	NA	no	ND
2-Methylphenol	0	/	4	0	–	0.5		no	40.4	*R5*	NA	no	ND
4-Methylphenol	0	/	4	0	–	0.5		no	163	*R5*	NA	no	ND
2-Nitroaniline	0	/	4	0	–	2		no	74.1	*R5*	NA	no	ND
3-Nitroaniline	0	/	4	0	–	2		no	3.16	*R5*	NA	no	ND
p-Nitroaniline	0	/	4	0	–	2		no	21.9	*R5*	NA	no	ND
2-Nitrophenol	0	/	7	0	–	0.5		no	1.6	*R5*	NA	no	ND
4-Nitrophenol	0	/	7	0	–	2		no	5.12	*R5*	NA	no	ND
n-Nitrosodi-n-propylamine	0	/	7	0	–	0.5		no	0.544	*R5*	NA	no	ND
n-Nitrosodiphenylamine	0	/	3	0	–	0.3		no	20	*R4*	NA	no	ND
n-Nitrosodiphenylamine & diphenylamine	0	/	4	0	–	0.5		no	20	*R4s*	NA	no	ND
Pentachlorophenol	0	/	7	0	–	2		no	2.1	*EcoSSL*	NA	no	ND
Phenol	0	/	7	0	–	0.5		no	120	*R5*	NA	no	ND
Tribromomethane	0	/	15	0	–	0.063		no	15.9	*R5*	NA	no	ND
2,4,5-Trichlorophenol	0	/	4	0	–	0.5		no	4	*R4*	NA	no	ND
2,4,6-Trichlorophenol	0	/	7	0	–	0.5		no	10	*R4*	NA	no	ND
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	7	0	–	0.5		no	139	*R5*	NA	no	ND
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	/	7	0	–	0.5		no	20	*R4*	NA	no	ND
Acenaphthylene	0	/	7	0	–	0.5		no	682	*R5*	NA	no	ND
Anthracene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Benzo(a)anthracene	0	/	7	0	–	0.5		no	5.21	*R5*	NA	no	ND
Benzo(a)pyrene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Benzo(b)fluoranthene	0	/	7	0	–	0.5	^	no	0.1	*R4s*	NA	no	ND
Benzo(g,h,i)perylene	0	/	7	0	–	0.5		no	119	*R5*	NA	no	ND
Benzo(k)fluoranthene	0	/	7	0	–	0.5		no	148	*R5*	NA	no	ND
1,2-Benzphenanthracene	0	/	7	0	–	0.5		no	4.73	*R5*	NA	no	ND
2-Chloronaphthalene	0	/	7	0	–	0.5	^	no	0.0122	*R5*	NA	no	ND
Dibenz(a,h)anthracene	0	/	7	0	–	0.5		no	18.4	*R5*	NA	no	ND
Fluoranthene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Fluorene	0	/	7	0	–	0.5		no	122	*R5*	NA	no	ND
Indeno(1,2,3-cd)pyrene	0	/	7	0	–	0.5		no	109	*R5*	NA	no	ND
2-Methylnaphthalene	0	/	4	0	–	0.5		no	3.24	*R5*	NA	no	ND
Naphthalene	0	/	13	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Phenanthrene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Pyrene	0	/	7	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Total Petroleum Hydrocarbons (TPH)													
>C10-C28	1	/	13	7.69	2,600	71		no	10,000	*API*	0.3	no	HQ ≤ 1

Table E.19.ERA-2
SLERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Maximum Concentration Detect (mg/kg)	SQL (mg/kg)		Pass Background Evaluation [a] (YES/no)	Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Maximum Hazard Quotient (HQ) [c] (unitless)	SLERA COPEC? [d] (YES/no)	Rational
Petroleum hydrocarbons	1	/	3	33.3	55	13		no	10,000	*API*	0.006	no	HQ ≤ 1
Total Petroleum Hydrocarbons (TPH)	5	/	36	13.9	11,000	40		no	10,000	*API*	1	no	HQ ≤ 1
Explosives													
2,6-Dinitrotoluene	0	/	3	0	–	0.3	^	no	0.0328	*R5*	NA	no	ND
Inorganics													
Aluminum	1	/	1	100	4,700	–		YES	50	*R4*	90	no	≤ BKGD
Antimony	3	/	7	42.9	0.98	12		no	0.27	*EcoSSL*	4	**YES**	HQ > 1
Arsenic	6	/	18	33.3	2.1	2		YES	18	*EcoSSL*	0.1	no	≤ BKGD
Barium	2	/	15	13.3	71	100		YES	330	*EcoSSL*	0.2	no	≤ BKGD
Beryllium	0	/	7	0	–	2.5		no	21	*EcoSSL*	NA	no	ND
Cadmium	0	/	18	0	–	2.7	^	no	0.36	*EcoSSL*	NA	no	ND
Chromium	1	/	15	6.67	7	7.3		YES	26	*EcoSSL*	0.3	no	≤ BKGD
Cobalt	0	/	1	0	–	10		no	13	*EcoSSL*	NA	no	ND
Copper	6	/	7	85.7	7	5		no	28	*EcoSSL*	0.3	no	HQ ≤ 1
Cyanide (Total)	0	/	4	0	–	0.2		no	5	*R4s*	NA	no	ND
Iron	1	/	1	100	3,800	–		YES	200	*R4*	20	no	≤ BKGD
Lead	9	/	18	50	30	25		no	11	*EcoSSL*	3	**YES**	HQ > 1
Manganese	1	/	1	100	80	–		no	220	*EcoSSL*	0.4	no	HQ ≤ 1
Mercury	0	/	17	0	–	0.5	^	no	0.1	*R4*	NA	no	ND
Molybdenum	0	/	1	0	–	13	^	no	2	*R4*	NA	no	ND
Nickel	6	/	7	85.7	10	8		no	38	*EcoSSL*	0.3	no	HQ ≤ 1
Selenium	0	/	18	0	–	60	^	no	0.52	*EcoSSL*	NA	no	ND
Silver	0	/	8	0	–	5	^	no	4.2	*EcoSSL*	NA	no	ND
Thallium	0	/	7	0	–	60	^	no	1	*R4*	NA	no	ND
Titanium	1	/	1	100	100	–		no	1,000	*R4*	0.1	no	HQ ≤ 1
Vanadium	1	/	1	100	21	–		no	7.8	*EcoSSL*	3	**YES**	HQ > 1
Zinc	7	/	7	100	27	–		YES	46	*EcoSSL*	0.6	no	≤ BKGD

Notes:

^ = SQLs greater than the screening value or without a screening value will be further evaluated and discussed in the uncertainty section of the risk assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.
SLERA = Screening Level Ecological Risk Assessment.
SQL = Sample Quantitation Limit.

[a] Background levels for inorganics are determined within the Background Evaluation (Appendix F).
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The hazard quotient (HQ) is the ratio of the maximum detected concentration to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for screening level assessment unless they were not detected (ND), essential nutrients and thus considered non-toxic (NT), or were inorganics present at concentrations below background (≤ BKGD).

Table E.19.ERA-3
BERA Constituents of Potential Ecological Concern in Soil
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	EPC [a] (mg/kg)		Ecological Screening Level (ESLs) [b] (mg/kg) Value	Source	Refined Hazard Quotient (HQ) [c] Detect (unitless)	Refined Constituent of Potential Ecological Concern (COPEC) [d] (YES/no)	Rational	Bioaccumulative ? [e] (YES/no)
Volatile Organic Compounds								
sec-Butylbenzene	0.095	m	NA		NA	**YES**	**NSL**	no
Ethylbenzene	0.38	m	0.05	*R4*	8	**YES**	**HQ > 1**	no
Isopropylbenzene	0.65	m	NA		NA	**YES**	**NSL**	no
n-Propylbenzene	0.12	m	NA		NA	**YES**	**NSL**	no
1,2,4-Trimethylbenzene	0.74	m	0.05	*R4s*	10	**YES**	**HQ > 1**	no
1,3,5-Trimethylbenzene	0.851	m	0.05	*R4s*	20	**YES**	**HQ > 1**	no
Inorganics								
Antimony	0.98	m	0.27	*EcoSSL*	4	**YES**	**HQ > 1**	no
Lead	14.6		11	*EcoSSL*	1	no	HQ ≤ 1	YES
Vanadium	21	m	7.8	*EcoSSL*	3	**YES**	**HQ > 1**	no

Notes:

BERA = Baseline Ecological Risk Assessment.
mg/kg = Milligrams per kilogram.
NA = Not available or applicable.

[a] The Exposure Point Concentrations (EPCs) based on the upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0, where calculable. EPCs marked with "m" are the maximum concentration.
[b] See Table E.2-22 for sources of ecological screening levels (ESLs); ESLs marked with 's' are based on a surrogate.
[c] The refined hazard quotient (HQ) is the ratio of the EPC to the surface soil screening level. HQs are rounded to the nearest whole number.
[d] Constituents with a refined hazard quotient (HQ) greater than 1 (HQ > 1) or without a screening level (NSL) were considered constituents of potential ecological concern (COPECs) for the baseline risk assessment.
[e] See Table E.2-24 for source of bioaccumulation potential designation.

Table E.20.Data-1
Groundwater Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
Volatile Organic Compounds													
Acetone	1	-	91	1.1	0.0149	-	0.0149	0.01	-	0.01	DRW-16(8/17/2005)	0.00511	–
Acetophenone	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Acrylonitrile	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Benzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Bis(2-chloroethyl)ether	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Bis(2-chloroisopropyl)ether	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Bromobenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Bromodichloromethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Bromomethane	0	-	91	0	–	-	–	0.001	-	0.005	–	0.0021	–
2-Butanone	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
tert-Butyl alcohol	0	-	20	0	–	-	–	0.005	-	0.005	–	0.0025	–
n-Butylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
sec-Butylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
tert-Butylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Carbon disulfide	1	-	91	1.1	0.00107	-	0.00107	0.001	-	0.001	HMW-58(12/12/2006)	0.000506	–
Carbon tetrachloride	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
CFC-11	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
CFC-12	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Chlorobenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Chlorobromomethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Chlorodibromomethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Chloroethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
2-Chloroethyl vinyl ether	0	-	90	0	–	-	–	0.005	-	0.005	–	0.0025	–
Chloroform	14	-	91	15.4	0.00103	-	0.00214	0.001	-	0.001	DRW-14	0.000637	0.00114
Chloromethane	1	-	91	1.1	0.00351	-	0.00351	0.001	-	0.001	DRW-16(8/17/2005)	0.000533	–
2-Chlorophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Chlorotoluene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
4-Chlorotoluene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Cymene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Dibenzofuran	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1,2-Dibromo-3-chloropropane (DBCP)	0	-	91	0	–	-	–	0.002	-	0.005	–	0.0022	–
1,2-Dibromoethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Dibromomethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,2-Dichlorobenzene	0	-	91	0	–	-	–	0.001	-	5	–	0.193	–
1,4-Dichlorobenzene	0	-	91	0	–	-	–	0.001	-	5	–	0.193	–
trans-1,4-Dichlorobutene	0	-	91	0	–	-	–	0.01	-	0.01	–	0.005	–
1,1-Dichloroethane	4	-	91	4.4	0.00117	-	0.00498	0.001	-	0.001	HMW-61(9/2/2008)	0.000606	–
1,2-Dichloroethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–

Table E.20.Data-1
Groundwater Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
1,1-Dichloroethylene	15	-	91	16.5	0.00102	-	0.0133	0.001	-	0.001	DRW-14	0.00163	0.00254
cis-1,2-Dichloroethene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
trans-1,2-Dichloroethene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Dichloromethane	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2-Dichloropropane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,3-Dichloropropane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
2,2-Dichloropropane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,1-Dichloropropene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
cis-1,3-Dichloropropene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
trans-1,3-Dichloropropene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Ethylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Iodomethane	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
Isopropyl alcohol	1	-	20	5	0.0646	-	0.0646	0.005	-	0.005	HMW-57(12/11/2006)	0.00561	–
Isopropylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
m-Dichlorobenzene	0	-	91	0	–	-	–	0.001	-	5	–	0.193	–
Methyl n-butyl ketone	0	-	91	0	–	-	–	0.001	-	0.005	–	0.0021	–
Methylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
4-Methyl-2-pentanone (MIBK)	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
Methyl tert-butyl ether (MTBE)	2	-	91	2.2	0.00134	-	0.00166	0.001	-	0.001	HMW-61(4/17/2008)	0.000522	–
Nitrobenzene	0	-	82	0	–	-	–	0.0005	-	5	–	0.245	–
n-Propylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Styrene (monomer)	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Tetrachloroethene	1	-	91	1.1	0.00582	-	0.00582	0.001	-	0.001	DRW-14(8/27/2008)	0.000558	–
1,1,1,2-Tetrachloroethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,1,2,2-Tetrachloroethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,1,1-Trichloroethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,1,2-Trichloroethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,2,3-Trichlorobenzene	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,3-Trichloropropane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,2,4-Trichlorobenzene	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
1,2,4-Trimethylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
1,3,5-Trimethylbenzene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Trichloroethylene	38	-	91	41.8	0.0018	-	0.171	0.001	-	0.001	DRW-14(8/27/2008)	0.0234	0.0443
Vinyl chloride	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
m,p-Xylene	1	-	91	1.1	0.00329	-	0.00329	0.001	-	0.001	DRW-16(9/12/2006)	0.000531	–
o-Xylene	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
Semi Volatile Organic Compounds													
4-Aminobiphenyl	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Aniline	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzidine	0	-	82	0	–	-	–	0.01	-	15	–	0.925	–

Table E.20.Data-1
Groundwater Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
Benzoic acid	0	-	82	0	–	-	–	0.005	-	20	–	1.22	–
Benzyl alcohol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzyl butyl phthalate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Bis(2-chloroethoxy)methane	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Bis(2-ethylhexyl)phthalate	0	-	82	0	–	-	–	0.005	-	10	–	0.614	–
4-Bromophenyl phenyl ether	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Butoxy ethanol	0	-	11	0	–	-	–	0.005	-	0.005	–	0.0025	–
p-Chloroaniline	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
4-Chloro-3-methylphenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Chlorophenols	0	-	82	0	–	-	–	0.005	-	5	–	0.309	–
4-Chlorophenyl phenyl ether	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
m,p-Cresol	0	-	74	0	–	-	–	0.005	-	5	–	0.171	–
Dibenz[a,,j]acridine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
3,3'-Dichlorobenzidine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2,4-Dichlorophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2,6-Dichlorophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.309	–
Diethyl phthalate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
4-Dimethylaminoazobenzene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2,4-Dimethylphenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2,4-Dinitrophenol	0	-	82	0	–	-	–	0.005	-	20	–	1.22	–
2,4-Dinitrotoluene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
a,a-Dimethylphenethylamine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Dimethyl phthalate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Di-n-butyl phthalate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
m-Dinitrobenzene	1	-	62	1.61	0.000669	-	0.000669	0.0005	-	0.0005	HMW-58(4/4/2008)	0.000257	–
Di-n-octyl phthalate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1,4-Dioxane	1	-	20	5	0.101	-	0.101	0.005	-	0.005	HMW-32(12/19/2006)	0.00743	–
Diphenylamine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Diphenylhydrazine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Ethyl methanesulfonate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Hexachloro-1,3-butadiene	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
Hexachlorobenzene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Hexachlorocyclopentadiene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Hexachloroethane	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Methanamine, n-methyl-n-nitroso	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Methyl-4,6-dinitrophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Methyl methanesulfonate	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Methylphenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
3-Methylphenol	0	-	8	0	–	-	–	0.005	-	5	–	1.56	–
4-Methylphenol	0	-	8	0	–	-	–	0.005	-	5	–	1.56	–

Table E.20.Data-1
Groundwater Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
2-Methyl pyridine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1-Naphthylamine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Naphthylamine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Nitroaniline	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
3-Nitroaniline	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
p-Nitroaniline	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Nitrophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
4-Nitrophenol	0	-	82	0	–	-	–	0.025	-	5	–	0.316	–
n-Nitrosodi-n-butylamine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
n-Nitrosodi-n-propylamine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
n-Nitrosopiperidine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Pentachlorobenzene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Pentachlorophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.309	–
Phenacetin	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Phenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Propyzamide	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Pyridine	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1,2,4,5-Tetrachlorobenzene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Tribromomethane	0	-	91	0	–	-	–	0.001	-	0.001	–	0.0005	–
2,4,5-Trichlorophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2,4,6-Trichlorophenol	0	-	82	0	–	-	–	0.005	-	5	–	0.309	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1,3,5-Trinitrobenzene	0	-	62	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Acenaphthylene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Anthracene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzo(a)anthracene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzo(a)pyrene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzo(b)fluoranthene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzo(g,h,i)perylene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Benzo(k)fluoranthene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1,2-Benzphenanthracene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1-Chloronaphthalene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Chloronaphthalene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Dibenz(a,h)anthracene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
7,12-Dimethylbenz(a)anthracene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Fluoranthene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Fluorene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Indeno(1,2,3-cd)pyrene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–

Table E.20.Data-1
Groundwater Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
3-Methylchloranthrene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1-Methylnaphthalene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2-Methylnaphthalene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Naphthalene	0	-	91	0	–	-	–	0.005	-	0.005	–	0.0025	–
Phenanthrene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Pyrene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
Herbicides													
2,4-D	0	-	12	0	–	-	–	0.0002	-	0.004	–	0.00137	–
2,4-DB	0	-	12	0	–	-	–	0.0002	-	0.004	–	0.00137	–
Dicamba	0	-	12	0	–	-	–	0.0002	-	0.002	–	0.0007	–
2,2-Dichlor0propionic acid	0	-	12	0	–	-	–	0.001	-	0.002	–	0.000833	–
Dichlorprop	0	-	12	0	–	-	–	0.0002	-	0.004	–	0.00137	–
MCPP	0	-	12	0	–	-	–	0.01	-	0.4	–	0.135	–
2,4,5-T	0	-	12	0	–	-	–	0.0002	-	0.001	–	0.000367	–
2,4,5-TP (Silvex)	0	-	12	0	–	-	–	0.0002	-	0.001	–	0.000367	–
Pesticides													
Aldrin	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
alpha-BHC	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
alpha-Chlordane	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
beta-BHC	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Camphechlor	1	-	24	4.17	0.0267	-	0.0267	0.005	-	1	HMW-34(2/4/2004)	0.149	–
4,4-DDD	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
4,4-DDE	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
4,4-DDT	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
delta-BHC	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Dieldrin	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Endosulfan I	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Endosulfan II	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Endosulfan sulfate	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Endrin	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Endrin aldehyde	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Endrin ketone	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
gamma-BHC	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
gamma-Chlordane	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Heptachlor	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Heptachlor epoxide	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
MCPA	0	-	12	0	–	-	–	0.01	-	0.4	–	0.135	–
Pentachloronitrobenzene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethar	0	-	24	0	–	-	–	0.0005	-	0.1	–	0.0168	–
Total Petroleum Hydrocarbons (TPH)													

Table E.20.Data-1
Groundwater Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
Diesel Range Organics (DRO)	0	-	88	0	–	-	–	5	-	50	–	9.66	–
Gasoline Range Organics (GRO)	0	-	88	0	–	-	–	0.1	-	0.1	–	0.05	–
Explosives													
2-Amino-4,6-dinitrotoluene	0	-	6	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
4-Amino-2,6-dinitrotoluene	0	-	6	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
4-Amino-dnt / 2-Amino-dnt	0	-	56	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
2,6-Dinitrotoluene	0	-	82	0	–	-	–	0.005	-	5	–	0.307	–
2,6-DNT / 2,4-DNT	0	-	56	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
2-Nitrotoluene	0	-	62	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
3-Nitrotoluene	0	-	62	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
4-Nitrotoluene	1	-	62	1.61	0.000841	-	0.000841	0.0005	-	0.0005	HMW-29(7/6/2004)	0.00026	–
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocin	0	-	62	0	–	-	–	0.0005	-	0.0005	–	0.00025	–
Perchlorate	0	-	20	0	–	-	–	0.00118	-	0.01	–	0.00286	–
RDX	1	-	62	1.61	0.000603	-	0.000603	0.0005	-	0.0005	HMW-55(3/31/2008)	0.000256	–
Tetryl	2	-	62	3.23	0.0014	-	0.00241	0.0005	-	0.0005	HMW-58(4/4/2008)	0.000303	–
2,4,6-Trinitrotoluene	1	-	62	1.61	0.000525	-	0.000525	0.0005	-	0.0005	DRW-16(9/12/2006)	0.000254	–
Inorganics													
Aluminum	9	-	34	26.5	0.125	-	2.7	0.03	-	0.1	HMW-34(2/4/2004)	0.24	0.491
Ammonia	1	-	47	2.13	4	-	4	1	-	1	HMW-29(7/6/2004)	0.574	–
Antimony	6	-	37	16.2	0.048	-	0.163	0.02	-	0.05	DRW-16(8/22/2008)	0.0268	0.0632
Arsenic	12	-	82	14.6	0.014	-	0.292	0.005	-	0.01	DRW-16	0.0143	0.03
Barium	53	-	82	64.6	0.006	-	0.125	0.01	-	0.1	HMW-34(3/23/2005)	0.0135	0.0155
Beryllium	8	-	71	11.3	0.003	-	0.119	0.002	-	0.0025	HMW-34(3/23/2005)	0.00346	0.013
Boron	34	-	34	100	0.946	-	2.2	–	-	–	HMW-32(2/5/2004)	1.51	1.605
Cadmium	6	-	93	6.45	0.001	-	0.005	0.001	-	0.005	DRW-16(3/3/2004)	0.000957	0.00122
Calcium metal	12	-	12	100	426	-	553	–	-	–	DRW-16(9/12/2006)	480	499.8
Chromium	44	-	94	46.8	0.002	-	12.2	0.001	-	0.01	DRW-16	0.79	2.131
Chromium (Hexavalent)	6	-	22	27.3	0.015	-	0.536	0.01	-	0.01	DRW-16	0.0694	0.135
Cobalt	4	-	71	5.63	0.004	-	0.287	0.002	-	0.02	HMW-34(3/23/2005)	0.00735	–
Copper	37	-	86	43	0.005	-	0.497	0.005	-	0.025	HMW-34(3/23/2005)	0.0274	0.0406
Cyanide (Total)	0	-	24	0	–	-	–	0.01	-	0.01	–	0.005	–
Fluoride	73	-	95	76.8	0.57	-	33.3	0.2	-	1	DRW-14	2.7	3.885
Iron	19	-	34	55.9	0.015	-	29.1	0.01	-	0.05	DRW-16	2.55	13.39
Lead	1	-	93	1.08	0.013	-	0.013	0.005	-	0.01	HMW-55(8/8/2008)	0.00323	–
Lithium	11	-	12	91.7	0.163	-	1.22	0.005	-	0.005	DRW-17(2/23/2006)	0.483	0.655
Magnesium	12	-	12	100	281	-	841	–	-	–	DRW-16(9/12/2006)	576	662.2
Manganese	8	-	34	23.5	0.028	-	0.209	0.005	-	0.025	DRW-16(9/12/2006)	0.0328	0.0595
Mercury	0	-	82	0	–	-	–	0.0002	-	0.0002	–	0.0001	–
Molybdenum	25	-	34	73.5	0.055	-	0.321	0.05	-	0.05	HMW-35(3/24/2005)	0.125	0.157
Nickel	18	-	71	25.4	0.005	-	1.02	0.005	-	0.025	DRW-16(9/12/2006)	0.0692	0.11

Table E.20.Data-1

Groundwater Risk Assessment Dataset

High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

White Sands Missile Range, New Mexico

Constituent [a]	Frequency of Detection [b]				Detects			Sample Quantitation Limit			Maximum Location	Arithmetic Average Detect	Upper Confidence Limit on the Mean [c]
	number of detects / number of samples			FOD %	Min (mg/L)	-	Max (mg/L)	Min (mg/L)	-	Max (mg/L)			
Nitrate	55	-	55	100	9.72	-	133	–	-	–	HMW-61(1/9/2007)	39.6	45.73
Nitrate + Nitrite	39	-	42	92.9	13.5	-	355	0.1	-	0.1	HMW-55(8/8/2008)	78.6	140
Phosphorus	19	-	50	38	0.052	-	1.26	0.05	-	0.05	HMW-34(3/23/2005)	0.073	0.135
Potassium	15	-	15	100	50.4	-	113	–	-	–	DRW-17(2/23/2006)	86	94.97
Selenium	46	-	82	56.1	0.021	-	0.286	0.01	-	0.05	HMW-35(3/24/2005)	0.0555	0.0721
Silver	0	-	94	0	–	-	–	0.002	-	0.0125	–	0.00195	–
Sodium	28	-	28	100	1660	-	4620	–	-	–	DRW-14(12/11/2006)	2730	2968
Strontium	34	-	34	100	5.82	-	31	–	-	–	DRW-16(5/5/2005)	12.3	13.86
Sulfate	95	-	95	100	230	-	14100	–	-	–	HMW-58(9/3/2008)	6970	7258
Thallium	0	-	37	0	–	-	–	0.02	-	0.05	–	0.0193	–
Tin	5	-	71	7.04	0.027	-	0.232	0.025	-	0.1	HMW-32(3/24/2005)	0.0302	0.0452
Vanadium	62	-	71	87.3	0.006	-	0.302	0.005	-	0.025	DRW-16	0.0379	0.0501
Zinc	32	-	94	34	0.005	-	0.4	0.005	-	0.025	HMW-58(9/3/2008)	0.0185	0.0333
Other													
Bromide	20	-	65	30.8	0.61	-	3.59	0.2	-	1	DRW-14(12/11/2006)	0.54	0.91
Chloride	95	-	95	100	521	-	6750	–	-	–	DRW-14(8/27/2008)	1710	1884

Notes:

– = Not analyzed/ not applicable.

mg/L = Milligrams per liter.

[a] Only constituents analyzed are presented.
For duplicate samples, the highest detected value or the lowest sample quantitation limit were used.
For constituents analyzed in two methods, the result of the more precise method was used.

[b] Frequency of detection (FOD) = number of detects / total number of samples analyzed.

[c] The upper confidence limits on the mean (UCLs) were calculated using ProUCL 4.0.

Table E.20-HHRA-1
Selection of Constituents of Potential Concern in Groundwater - Based on Maximum Detected Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds											
Acetone	1	91	1.1	0.0149	0.01		2.18E+01	n	no	–	6.84E-04
Acetophenone	0	82	0	–	5	^	3.65E+00	n	–	–	–
Acrylonitrile	0	91	0	–	0.001	^	4.54E-04	c	–	–	–
Benzene	0	91	0	–	0.001		5.00E-03	c	–	–	–
Bis(2-chloroethyl)ether	0	82	0	–	5	^	1.20E-04	c	–	–	–
Bis(2-chloroisopropyl)ether	0	82	0	–	5	^	9.60E-03	c	–	–	–
Bromobenzene	0	91	0	–	0.001		8.80E-02	n	–	–	–
Bromodichloromethane	0	91	0	–	0.001		8.00E-02	c	–	–	–
Bromomethane	0	91	0	–	0.005		8.66E-03	n	–	–	–
2-Butanone	0	91	0	–	0.005		7.10E+00	n	–	–	–
tert-Butyl alcohol	0	20	0	–	0.005		NA		–	–	–
n-Butylbenzene	0	91	0	–	0.001		NA		–	–	–
sec-Butylbenzene	0	91	0	–	0.001		NA		–	–	–
tert-Butylbenzene	0	91	0	–	0.001		NA		–	–	–
Carbon disulfide	1	91	1.1	0.00107	0.001		1.04E+00	n	no	–	1.03E-03
Carbon tetrachloride	0	91	0	–	0.001		5.00E-03	c	–	–	–
CFC-11	0	91	0	–	0.001		1.30E+00	n	–	–	–
CFC-12	0	91	0	–	0.001		3.90E-01	n	–	–	–
Chlorobenzene	0	91	0	–	0.001		1.00E-01	n	–	–	–
Chlorobromomethane	0	91	0	–	0.001		NA		–	–	–
Chlorodibromomethane	0	91	0	–	0.001		8.00E-02	c	–	–	–
Chloroethane	0	91	0	–	0.001		2.09E+01	n	–	–	–
2-Chloroethyl vinyl ether	0	90	0	–	0.005		NA		–	–	–
Chloroform	14	91	15.4	0.00214	0.001		8.00E-02	c	no	2.68E-02	–
Chloromethane	1	91	1.1	0.00351	0.001		1.78E-02	c	no	1.98E-01	–
2-Chlorophenol	0	82	0	–	5	^	1.83E-01	n	–	–	–
2-Chlorotoluene	0	91	0	–	0.001		7.30E-01	n	–	–	–
4-Chlorotoluene	0	91	0	–	0.001		2.60E+00	n	–	–	–
Cymene	0	91	0	–	0.001		NA		–	–	–
Dibenzofuran	0	82	0	–	5	^	3.70E-02	n	–	–	–
1,2-Dibromo-3-chloropropane (DBCP)	0	91	0	–	0.005	^	2.00E-04	c	–	–	–
1,2-Dibromoethane	0	91	0	–	0.001	^	5.00E-05	c	–	–	–
Dibromomethane	0	91	0	–	0.001		3.65E-01	n	–	–	–
1,2-Dichlorobenzene	0	91	0	–	5	^	6.00E-01	n	–	–	–
1,4-Dichlorobenzene	0	91	0	–	5	^	7.50E-02	c	–	–	–
trans-1,4-Dichlorobutene	0	91	0	–	0.01	^	1.20E-05	c	–	–	–
1,1-Dichloroethane	4	91	4.4	0.00498	0.001		2.50E-02	c	no	1.99E-01	–
1,2-Dichloroethane	0	91	0	–	0.001		5.00E-03	c	–	–	–
1,1-Dichloroethylene	15	91	16.5	0.0133	0.001		5.00E-03	n	YES	–	2.66E+00
cis-1,2-Dichloroethene	0	91	0	–	0.001		7.00E-02	n	–	–	–
trans-1,2-Dichloroethene	0	91	0	–	0.001		1.00E-01	n	–	–	–
Dichloromethane	0	91	0	–	0.005		5.00E-03	c	–	–	–
1,2-Dichloropropane	0	91	0	–	0.001		5.00E-03	c	–	–	–
1,2-Dichloropropane	0	91	0	–	0.001		5.00E-03	c	–	–	–
2,2-Dichloropropane	0	91	0	–	0.001		NA		–	–	–
1,1-Dichloropropene	0	91	0	–	0.001		NA		–	–	–
cis-1,3-Dichloropropene	0	91	0	–	0.001		4.33E-03	c	–	–	–

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White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
trans-1,3-Dichloropropene	0	91	0	–	0.001		4.33E-03	c	–	–	–
Ethylbenzene	0	91	0	–	0.001		7.00E-01	c	–	–	–
Iodomethane	0	91	0	–	0.005		NA		–	–	–
Isopropyl alcohol	1	20	5	0.0646	0.005		NA		NA	–	–
Isopropylbenzene	0	91	0	–	0.001		6.79E-01	n	–	–	–
m-Dichlorobenzene	0	91	0	–	5	^	6.00E-01		–	–	–
Methyl n-butyl ketone	0	91	0	–	0.005		4.70E-02	n	–	–	–
Methylbenzene	0	91	0	–	0.001		7.50E-01	n	–	–	–
4-Methyl-2-pentanone (MIBK)	0	91	0	–	0.005		2.00E+00	n	–	–	–
Methyl tert-butyl ether (MTBE)	2	91	2.2	0.00166	0.001		1.25E-01	c	no	1.33E-02	–
Nitrobenzene	0	82	0	–	5	^	1.49E-02	n	–	–	–
n-Propylbenzene	0	91	0	–	0.001		1.30E+00	n	–	–	–
Styrene (monomer)	0	91	0	–	0.001		1.00E-01	n	–	–	–
Tetrachloroethene	1	91	1.1	0.00582	0.001		5.00E-03	c	YES	1.16E+00	–
1,1,1,2-Tetrachloroethane	0	91	0	–	0.001		5.24E-03	c	–	–	–
1,1,2,2-Tetrachloroethane	0	91	0	–	0.001		1.00E-02	c	–	–	–
1,1,1-Trichloroethane	0	91	0	–	0.001		6.00E-02	n	–	–	–
1,1,2-Trichloroethane	0	91	0	–	0.001		5.00E-03	c	–	–	–
1,2,3-Trichlorobenzene	0	91	0	–	0.005		2.90E-02	n	–	–	–
1,2,3-Trichloropropane	0	91	0	–	0.001	^	9.60E-05	c	–	–	–
1,2,4-Trichlorobenzene	0	91	0	–	0.005		7.00E-02	c	–	–	–
1,2,4-Trimethylbenzene	0	91	0	–	0.001		1.50E-02	n	–	–	–
1,3,5-Trimethylbenzene	0	91	0	–	0.001		3.70E-01	n	–	–	–
Trichloroethylene	38	91	41.8	0.171	0.001		5.00E-03	c	YES	3.42E+01	–
Vinyl chloride	0	91	0	–	0.001		1.00E-03	c	–	–	–
m,p-Xylene	1	91	1.1	0.00329	0.001		1.00E+01	n	no	–	3.29E-04
o-Xylene	0	91	0	–	0.001		1.00E+01	n	–	–	–
Semi Volatile Organic Compounds											
4-Aminobiphenyl	0	82	0	–	5	^	3.20E-05	c	–	–	–
Aniline	0	82	0	–	5	^	1.20E-01	c	–	–	–
Benzidine	0	82	0	–	15	^	2.92E-06	c	–	–	–
Benzoic acid	0	82	0	–	20		1.50E+02	n	–	–	–
Benzyl alcohol	0	82	0	–	5	^	3.70E+00	n	–	–	–
Benzyl butyl phthalate	0	82	0	–	5	^	3.50E-01	c	–	–	–
Bis(2-chloroethoxy)methane	0	82	0	–	5	^	1.10E-01	n	–	–	–
Bis(2-ethylhexyl)phthalate	0	82	0	–	10	^	6.00E-03	c	–	–	–
4-Bromophenyl phenyl ether	0	82	0	–	5		NA		–	–	–
2-Butoxy ethanol	0	11	0	–	0.005		1.80E+01	n	–	–	–
p-Chloroaniline	0	82	0	–	5	^	3.40E-03	c	–	–	–
4-Chloro-3-methylphenol	0	82	0	–	5	^	3.70E+00	n	–	–	–
Chlorophenols	0	82	0	–	5	^	1.10E+00	n	–	–	–
4-Chlorophenyl phenyl ether	0	82	0	–	5		NA		–	–	–
m,p-Cresol	0	74	0	–	5	^	9.30E-01	n	–	–	–
Dibenz[a,,j]acridine	0	82	0	–	5		NA		–	–	–
3,3'-Dichlorobenzidine	0	82	0	–	5	^	1.50E-03	c	–	–	–
2,4-Dichlorophenol	0	82	0	–	5	^	1.10E-01	n	–	–	–
2,6-Dichlorophenol	0	82	0	–	5		NA		–	–	–
Diethyl phthalate	0	82	0	–	5		2.92E+01	n	–	–	–

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White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
4-Dimethylaminoazobenzene	0	/	82	0	–	5	^	1.50E-04	c	–	–	–
2,4-Dimethylphenol	0	/	82	0	–	5	^	7.30E-01	n	–	–	–
2,4-Dinitrophenol	0	/	82	0	–	20	^	7.30E-02	n	–	–	–
2,4-Dinitrotoluene	0	/	82	0	–	5	^	2.17E-03	c	–	–	–
a,a-Dimethylphenethylamine	0	/	82	0	–	5		NA		–	–	–
Dimethyl phthalate	0	/	82	0	–	5		3.65E+02	n	–	–	–
Di-n-butyl phthalate	0	/	82	0	–	5	^	3.65E+00	n	–	–	–
m-Dinitrobenzene	1	/	62	1.61	0.00067	0.0005		3.70E-03	n	no	–	1.81E-01
Di-n-octyl phthalate	0	/	82	0	–	5		NA		–	–	–
1,4-Dioxane	1	/	20	5	0.101	0.005		6.11E-02	c	YES	1.65E+00	–
Diphenylamine	0	/	82	0	–	5	^	9.10E-01	n	–	–	–
Diphenylhydrazine	0	/	82	0	–	5		NA		–	–	–
Ethyl methanesulfonate	0	/	82	0	–	5		NA		–	–	–
Hexachloro-1,3-butadiene	0	/	91	0	–	0.005		8.62E-03	c	–	–	–
Hexachlorobenzene	0	/	82	0	–	5	^	1.00E-03	c	–	–	–
Hexachlorocyclopentadiene	0	/	82	0	–	5	^	5.00E-02	n	–	–	–
Hexachloroethane	0	/	82	0	–	5	^	3.65E-02	n	–	–	–
Methanamine, n-methyl-n-nitroso	0	/	82	0	–	5	^	4.20E-06	c	–	–	–
2-Methyl-4,6-dinitrophenol	0	/	82	0	–	5	^	3.70E-03	n	–	–	–
Methyl methanesulfonate	0	/	82	0	–	5	^	6.80E-03	c	–	–	–
2-Methylphenol	0	/	82	0	–	5	^	1.80E+00	n	–	–	–
3-Methylphenol	0	/	8	0	–	5	^	1.80E+00	n	–	–	–
4-Methylphenol	0	/	8	0	–	5	^	1.80E-01	n	–	–	–
2-Methyl pyridine	0	/	82	0	–	5		NA		–	–	–
1-Naphthylamine	0	/	82	0	–	5		NA		–	–	–
2-Naphthylamine	0	/	82	0	–	5	^	3.70E-04	c	–	–	–
2-Nitroaniline	0	/	82	0	–	5	^	3.70E-01	n	–	–	–
3-Nitroaniline	0	/	82	0	–	5		NA		–	–	–
p-Nitroaniline	0	/	82	0	–	5	^	3.40E-02	c	–	–	–
2-Nitrophenol	0	/	82	0	–	5		NA		–	–	–
4-Nitrophenol	0	/	82	0	–	5		NA		–	–	–
n-Nitrosodi-n-butylamine	0	/	82	0	–	5	^	2.44E-05	c	–	–	–
n-Nitrosodi-n-propylamine	0	/	82	0	–	5	^	9.60E-05	c	–	–	–
n-Nitrosopiperidine	0	/	82	0	–	5	^	7.20E-05	c	–	–	–
Pentachlorobenzene	0	/	82	0	–	5	^	2.92E-02	n	–	–	–
Pentachlorophenol	0	/	82	0	–	5	^	1.00E-03	c	–	–	–
Phenacetin	0	/	82	0	–	5	^	3.10E-01	c	–	–	–
Phenol	0	/	82	0	–	5	^	5.00E-03	n	–	–	–
Propyzamide	0	/	82	0	–	5	^	2.70E+00	n	–	–	–
Pyridine	0	/	82	0	–	5	^	3.70E-02	n	–	–	–
1,2,4,5-Tetrachlorobenzene	0	/	82	0	–	5	^	1.10E-02	n	–	–	–
Tribromomethane	0	/	91	0	–	0.001		8.00E-02	c	–	–	–
2,4,5-Trichlorophenol	0	/	82	0	–	5	^	3.65E+00	n	–	–	–
2,4,6-Trichlorophenol	0	/	82	0	–	5	^	3.65E-02	n	–	–	–
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	82	0	–	5	^	7.10E-01	c	–	–	–
1,3,5-Trinitrobenzene	0	/	62	0	–	0.0005		1.10E+00	n	–	–	–
Polycyclic Aromatic Hydroc [f]												
Acenaphthene	0	/	82	0	–	5	^	2.19E+00	n	–	–	–

Table E.20-HHRA-1
Selection of Constituents of Potential Concern in Groundwater - Based on Maximum Detected Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Acenaphthylene	0	82	0	–	5		NA		–	–	–
Anthracene	0	82	0	–	5		1.10E+01	n	–	–	–
Benzo(a)anthracene	0	82	0	–	5	^	2.00E-04	c	–	–	–
Benzo(a)pyrene	0	82	0	–	5	^	2.00E-04	c	–	–	–
Benzo(b)fluoranthene	0	82	0	–	5	^	2.00E-04	c	–	–	–
Benzo(g,h,i)perylene	0	82	0	–	5	^	2.00E-04		–	–	–
Benzo(k)fluoranthene	0	82	0	–	5	^	2.00E-04	c	–	–	–
1,2-Benzphenanthracene	0	82	0	–	5	^	2.00E-04	c	–	–	–
1-Chloronaphthalene	0	82	0	–	5	^	2.92E+00	n	–	–	–
2-Chloronaphthalene	0	82	0	–	5	^	2.92E+00	n	–	–	–
Dibenz(a,h)anthracene	0	82	0	–	5	^	2.00E-04	c	–	–	–
7,12-Dimethylbenz(a)anthracene	0	82	0	–	5	^	2.70E-06	c	–	–	–
Fluoranthene	0	82	0	–	5	^	1.46E+00	n	–	–	–
Fluorene	0	82	0	–	5	^	1.46E+00	n	–	–	–
Indeno(1,2,3-cd)pyrene	0	82	0	–	5	^	2.00E-04	c	–	–	–
3-Methylchloranthrene	0	82	0	–	5	^	3.10E-05	c	–	–	–
1-Methylnaphthalene	0	82	0	–	5	^	3.00E-02	c	–	–	–
2-Methylnaphthalene	0	82	0	–	5	^	3.00E-02	n	–	–	–
Naphthalene	0	91	0	–	0.005		3.00E-02	c	–	–	–
Phenanthrene	0	82	0	–	5	^	1.10E+00	n	–	–	–
Pyrene	0	82	0	–	5	^	1.10E+00	n	–	–	–
Herbicides											
2,4-D	0	12	0	–	0.004		7.00E-02	n	–	–	–
2,4-DB	0	12	0	–	0.004		2.90E-01	n	–	–	–
Dicamba	0	12	0	–	0.002		1.10E+00	n	–	–	–
2,2-Dichlor0propionic acid	0	12	0	–	0.002		1.10E+00	n	–	–	–
Dichlorprop	0	12	0	–	0.004		NA		–	–	–
MCPP	0	12	0	–	0.4	^	3.70E-02	n	–	–	–
2,4,5-T	0	12	0	–	0.001		3.70E-01	n	–	–	–
2,4,5-TP (Silvex)	0	12	0	–	0.001		2.90E-01	n	–	–	–
Pesticides											
Aldrin	0	24	0	–	0.1	^	3.92E-05	c	–	–	–
alpha-BHC	0	24	0	–	0.1	^	1.10E-04	c	–	–	–
alpha-Chlordane	0	24	0	–	0.1	^	2.00E-03		–	–	–
beta-BHC	0	24	0	–	0.1	^	3.73E-04	c	–	–	–
Camphechlor	1	24	4.17	0.0267	1	^	3.00E-03	c	YES	8.90E+00	–
4,4-DDD	0	24	0	–	0.1	^	2.80E-03	c	–	–	–
4,4-DDE	0	24	0	–	0.1	^	1.98E-03	c	–	–	–
4,4-DDT	0	24	0	–	0.1	^	1.98E-03	c	–	–	–
delta-BHC	0	24	0	–	0.1		NA		–	–	–
Dieldrin	0	24	0	–	0.1	^	4.20E-05	c	–	–	–
Endosulfan I	0	24	0	–	0.1		NA		–	–	–
Endosulfan II	0	24	0	–	0.1		NA		–	–	–
Endosulfan sulfate	0	24	0	–	0.1		NA		–	–	–
Endrin	0	24	0	–	0.1	^	2.00E-03	n	–	–	–
Endrin aldehyde	0	24	0	–	0.1		NA		–	–	–
Endrin ketone	0	24	0	–	0.1		NA		–	–	–
gamma-BHC	0	24	0	–	0.1	^	2.00E-04	c	–	–	–

Table E.20-HHRA-1
Selection of Constituents of Potential Concern in Groundwater - Based on Maximum Detected Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
gamma-Chlordane	0	/	24	0	–	0.1		NA		–	–	–
Heptachlor	0	/	24	0	–	0.1	^	4.00E-04	c	–	–	–
Heptachlor epoxide	0	/	24	0	–	0.1	^	2.00E-04	c	–	–	–
MCPA	0	/	12	0	–	0.4	^	1.80E-02	n	–	–	–
Pentachloronitrobenzene	0	/	82	0	–	5	^	2.60E-03	c	–	–	–
1,1,1-Trichloro-2,2-bis (p-Methoxphenyl)-ethane	0	/	24	0	–	0.1	^	4.00E-02	n	–	–	–
Total Petroleum Hydrocarbons (TPH)												
Diesel Range Organics (DRO)	0	/	88	0	–	50		NA		–	–	–
Gasoline Range Organics (GRO)	0	/	88	0	–	0.1		NA		–	–	–
Explosives												
2-Amino-4,6-dinitrotoluene	0	/	6	0	–	0.0005		7.30E-02	n	–	–	–
4-Amino-2,6-dinitrotoluene	0	/	6	0	–	0.0005		7.30E-02	n	–	–	–
4-Amino-dnt / 2-Amino-dnt	0	/	56	0	–	0.0005		NA		–	–	–
2,6-Dinitrotoluene	0	/	82	0	–	5	^	3.65E-02	n	–	–	–
2,6-DNT / 2,4-DNT	0	/	56	0	–	0.0005		NA		–	–	–
2-Nitrotoluene	0	/	62	0	–	0.0005		3.05E-03	c	–	–	–
3-Nitrotoluene	0	/	62	0	–	0.0005		7.30E-01	n	–	–	–
4-Nitrotoluene	1	/	62	1.61	0.00084	0.0005		4.20E-02	c	no	2.00E-02	–
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	0	/	62	0	–	0.0005		1.80E+00	n	–	–	–
RDX	1	/	62	1.61	0.0006	0.0005		6.11E-03	c	no	9.87E-02	–
Tetryl	2	/	62	3.23	0.00241	0.0005		1.46E-01	n	no	–	1.65E-02
2,4,6-Trinitrotoluene	1	/	62	1.61	0.00053	0.0005		1.83E-02	n	no	–	2.88E-02
Inorganics												
Aluminum	9	/	34	26.5	2.7	0.1		3.65E+01	n	no	–	7.40E-02
Antimony	6	/	37	16.2	0.163	0.05	^	6.00E-03	n	YES	–	2.72E+01
Arsenic	12	/	82	14.6	0.292	0.01		1.00E-02	c	YES	2.92E+01	–
Barium	53	/	82	64.6	0.125	0.1		1.00E+00	n	no	–	1.25E-01
Beryllium	8	/	71	11.3	0.119	0.0025		4.00E-03	n	YES	–	2.98E+01
Boron	34	/	34	100	2.2	–		7.30E+00	n	no	–	3.01E-01
Cadmium	6	/	93	6.45	0.005	0.005		5.00E-03	n	no	–	1.00E+00
Calcium metal	12	/	12	100	553	–		NA		NA	–	–
Chloride	95	/	95	100	6,750	–		2.50E+02		YES	–	–
Chromium	44	/	94	46.8	12.2	0.01		5.00E-02	n	YES	–	2.44E+02
Chromium (Hexavalent)	6	/	22	27.3	0.536	0.01		1.00E-01	n	YES	–	5.36E+00
Cobalt	4	/	71	5.63	0.287	0.02	^	1.10E-02	n	YES	–	2.61E+01
Copper	37	/	86	43	0.497	0.025		1.00E+00	n	no	–	4.97E-01
Cyanide (Total)	0	/	24	0	–	0.01		NA		–	–	–
Fluoride	73	/	95	76.8	33.3	1		1.60E+00		YES	–	–
Iron	19	/	34	55.9	29.1	0.05		3.00E-01	n	YES	–	9.70E+01
Lead	1	/	93	1.08	0.013	0.01		1.50E-02		no	–	–
Lithium	11	/	12	91.7	1.22	0.005		7.30E-02	n	YES	–	1.67E+01
Magnesium	12	/	12	100	841	–		NA		NA	–	–
Manganese	8	/	34	23.5	0.209	0.025		5.00E-02		YES	–	–
Mercury	0	/	82	0	–	0.0002		2.00E-03	n	–	–	–
Molybdenum	25	/	34	73.5	0.321	0.05		1.83E-01	n	YES	–	1.76E+00
Nickel	18	/	71	25.4	1.02	0.025		7.30E-01	n	YES	–	1.40E+00
Nitrate	55	/	55	100	133	–		1.00E+01	n	YES	–	1.33E+01
Phosphorus	19	/	50	38	1.26	0.05		NA		NA	–	–

Table E.20-HHRA-1
Selection of Constituents of Potential Concern in Groundwater - Based on Maximum Detected Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Potassium	15	/	15	100	113	–		NA		NA	–	–
Selenium	46	/	82	56.1	0.286	0.05		5.00E-02	n	YES	–	5.72E+00
Silver	0	/	94	0	–	0.0125		5.00E-02	n	–	–	–
Sodium	28	/	28	100	4,620	–		NA		NA	–	–
Sulfate	95	/	95	100	14,100	–		2.50E+02		YES	–	–
Strontium	34	/	34	100	31	–		2.19E+01	n	YES	–	1.42E+00
Thallium	0	/	37	0	–	0.05	^	2.00E-03		–	–	–
Tin	5	/	71	7.04	0.232	0.1		2.20E+01	n	no	–	1.05E-02
Vanadium	62	/	71	87.3	0.302	0.025		1.83E-01	n	YES	–	1.65E+00
Zinc	32	/	94	34	0.4	0.025		5.00E+00	n	no	–	8.00E-02
Total Maximum / Screening Level Ratios											75.7	476
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											8.E-04	476

Target Organ Max/SL Ratios	
Kidney and Liver	104
Brain	NA
Nasal	NA
Eyes	NA
Skin	26.1
Lung	279
Gastrointestinal Tract and Forestomach	127
Whole Body	34.3
Blood	126
Central Nervous System	0.0003
Nervous System	0.07
Red Blood Cells	NA
Glands	NA
Fetus	0.4
Immune	0.2
Development	0.07
Reproduction	NA
Not Available/ Not Reported	NA

Notes:

– =	Not applicable.
^ =	Maximum SQL exceeds minimum criteria.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-4 for sources of groundwater screening levels and explanation of notes.

Table E.20-HHRA-2
Selection of Constituents of Potential Concern in Groundwater - Based on Exposure Point Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	1	/	91	1.1	0.0149	m	2.18E+01	n	no	–	6.84E-04	YES
Acetophenone	0	/	82	0	–		3.65E+00	n	–	–	–	no
Acrylonitrile	0	/	91	0	–		4.54E-04	c	–	–	–	no
Benzene	0	/	91	0	–		5.00E-03	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	82	0	–		1.20E-04	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	82	0	–		9.60E-03	c	–	–	–	no
Bromobenzene	0	/	91	0	–		8.80E-02	n	–	–	–	no
Bromodichloromethane	0	/	91	0	–		8.00E-02	c	–	–	–	no
Bromomethane	0	/	91	0	–		8.66E-03	n	–	–	–	no
2-Butanone	0	/	91	0	–		7.10E+00	n	–	–	–	no
tert-Butyl alcohol	0	/	20	0	–		NA		–	–	–	no
n-Butylbenzene	0	/	91	0	–		NA		–	–	–	no
sec-Butylbenzene	0	/	91	0	–		NA		–	–	–	no
tert-Butylbenzene	0	/	91	0	–		NA		–	–	–	no
Carbon disulfide	1	/	91	1.1	0.00107	m	1.04E+00	n	no	–	1.03E-03	YES
Carbon tetrachloride	0	/	91	0	–		5.00E-03	c	–	–	–	no
CFC-11	0	/	91	0	–		1.30E+00	n	–	–	–	no
CFC-12	0	/	91	0	–		3.90E-01	n	–	–	–	no
Chlorobenzene	0	/	91	0	–		1.00E-01	n	–	–	–	no
Chlorobromomethane	0	/	91	0	–		NA		–	–	–	no
Chlorodibromomethane	0	/	91	0	–		8.00E-02	c	–	–	–	no
Chloroethane	0	/	91	0	–		2.09E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	90	0	–		NA		–	–	–	no
Chloroform	14	/	91	15.4	0.00114		8.00E-02	c	no	1.43E-02	–	YES
Chloromethane	1	/	91	1.1	0.00351	m	1.78E-02	c	no	1.98E-01	–	YES
2-Chlorophenol	0	/	82	0	–		1.83E-01	n	–	–	–	no
2-Chlorotoluene	0	/	91	0	–		7.30E-01	n	–	–	–	no
4-Chlorotoluene	0	/	91	0	–		2.60E+00	n	–	–	–	no
Cymene	0	/	91	0	–		NA		–	–	–	no
Dibenzofuran	0	/	82	0	–		3.70E-02	n	–	–	–	no
1,2-Dibromo-3-chloropropane (DBCP)	0	/	91	0	–		2.00E-04	c	–	–	–	no
1,2-Dibromoethane	0	/	91	0	–		5.00E-05	c	–	–	–	no
Dibromomethane	0	/	91	0	–		3.65E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	91	0	–		6.00E-01	n	–	–	–	no
1,4-Dichlorobenzene	0	/	91	0	–		7.50E-02	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	91	0	–		1.20E-05	c	–	–	–	no
1,1-Dichloroethane	4	/	91	4.4	0.00498	m	2.50E-02	c	no	1.99E-01	–	YES
1,2-Dichloroethane	0	/	91	0	–		5.00E-03	c	–	–	–	no
1,1-Dichloroethylene	15	/	91	16.5	0.00254		5.00E-03	n	no	–	5.08E-01	YES
cis-1,2-Dichloroethene	0	/	91	0	–		7.00E-02	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	91	0	–		1.00E-01	n	–	–	–	no
Dichloromethane	0	/	91	0	–		5.00E-03	c	–	–	–	no
1,2-Dichloropropane	0	/	91	0	–		5.00E-03	c	–	–	–	no

Table E.20-HHRA-2
Selection of Constituents of Potential Concern in Groundwater - Based on Exposure Point Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
1,2-Dichloropropane	0	/	91	0	–		5.00E-03	c	–	–	–	no
2,2-Dichloropropane	0	/	91	0	–		NA		–	–	–	no
1,1-Dichloropropene	0	/	91	0	–		NA		–	–	–	no
cis-1,3-Dichloropropene [f]	0	/	91	0	–		4.33E-03	c	–	–	–	no
trans-1,3-Dichloropropene	0	/	91	0	–		4.33E-03	c	–	–	–	no
Ethylbenzene	0	/	91	0	–		7.00E-01	c	–	–	–	no
Iodomethane	0	/	91	0	–		NA		–	–	–	no
Isopropyl alcohol	1	/	20	5	0.0646	m	NA		NA	–	–	YES
Isopropylbenzene	0	/	91	0	–		6.79E-01	n	–	–	–	no
m-Dichlorobenzene	0	/	91	0	–		6.00E-01		–	–	–	no
Methyl n-butyl ketone	0	/	91	0	–		4.70E-02	n	–	–	–	no
Methylbenzene	0	/	91	0	–		7.50E-01	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/	91	0	–		2.00E+00	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	2	/	91	2.2	0.00166	m	1.25E-01	c	no	1.33E-02	–	YES
Nitrobenzene	0	/	82	0	–		1.49E-02	n	–	–	–	no
n-Propylbenzene	0	/	91	0	–		1.30E+00	n	–	–	–	no
Styrene (monomer)	0	/	91	0	–		1.00E-01	n	–	–	–	no
Tetrachloroethene	1	/	91	1.1	0.00582	m	5.00E-03	c	YES	1.16E+00	–	YES
1,1,1,2-Tetrachloroethane	0	/	91	0	–		5.24E-03	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/	91	0	–		1.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/	91	0	–		6.00E-02	n	–	–	–	no
1,1,2-Trichloroethane	0	/	91	0	–		5.00E-03	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/	91	0	–		2.90E-02	n	–	–	–	no
1,2,3-Trichloropropane	0	/	91	0	–		9.60E-05	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/	91	0	–		7.00E-02	c	–	–	–	no
1,2,4-Trimethylbenzene	0	/	91	0	–		1.50E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/	91	0	–		3.70E-01	n	–	–	–	no
Trichloroethylene	38	/	91	41.8	0.0443		5.00E-03	c	YES	8.86E+00	–	YES
Vinyl chloride	0	/	91	0	–		1.00E-03	c	–	–	–	no
m,p-Xylene	1	/	91	1.1	0.00329	m	1.00E+01	n	no	–	3.29E-04	YES
o-Xylene	0	/	91	0	–		1.00E+01	n	–	–	–	no
Semi Volatile Organic Compounds												
4-Aminobiphenyl	0	/	82	0	–		3.20E-05	c	–	–	–	no
Aniline	0	/	82	0	–		1.20E-01	c	–	–	–	no
Benzidine	0	/	82	0	–		2.92E-06	c	–	–	–	no
Benzoic acid	0	/	82	0	–		1.50E+02	n	–	–	–	no
Benzyl alcohol	0	/	82	0	–		3.70E+00	n	–	–	–	no
Benzyl butyl phthalate	0	/	82	0	–		3.50E-01	c	–	–	–	no
Bis(2-chloroethoxy)methane	0	/	82	0	–		1.10E-01	n	–	–	–	no
Bis(2-ethylhexyl)phthalate	0	/	82	0	–		6.00E-03	c	–	–	–	no
4-Bromophenyl phenyl ether	0	/	82	0	–		NA		–	–	–	no
2-Butoxy ethanol	0	/	11	0	–		1.80E+01	n	–	–	–	no
p-Chloroaniline	0	/	82	0	–		3.40E-03	c	–	–	–	no
4-Chloro-3-methylphenol	0	/	82	0	–		3.70E+00	n	–	–	–	no

Table E.20-HHRA-2
Selection of Constituents of Potential Concern in Groundwater - Based on Exposure Point Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Chlorophenols	0	/	82	0	–		1.10E+00	n	–	–	–	no
4-Chlorophenyl phenyl ether	0	/	82	0	–		NA		–	–	–	no
m,p-Cresol	0	/	74	0	–		9.30E-01	n	–	–	–	no
Dibenz[a,,j]acridine	0	/	82	0	–		NA		–	–	–	no
3,3'-Dichlorobenzidine	0	/	82	0	–		1.50E-03	c	–	–	–	no
2,4-Dichlorophenol	0	/	82	0	–		1.10E-01	n	–	–	–	no
2,6-Dichlorophenol	0	/	82	0	–		NA		–	–	–	no
Diethyl phthalate	0	/	82	0	–		2.92E+01	n	–	–	–	no
4-Dimethylaminoazobenzene	0	/	82	0	–		1.50E-04	c	–	–	–	no
2,4-Dimethylphenol	0	/	82	0	–		7.30E-01	n	–	–	–	no
2,4-Dinitrophenol	0	/	82	0	–		7.30E-02	n	–	–	–	no
2,4-Dinitrotoluene	0	/	82	0	–		2.17E-03	c	–	–	–	no
a,a-Dimethylphenethylamine	0	/	82	0	–		NA		–	–	–	no
Dimethyl phthalate	0	/	82	0	–		3.65E+02	n	–	–	–	no
Di-n-butyl phthalate	0	/	82	0	–		3.65E+00	n	–	–	–	no
m-Dinitrobenzene	1	/	62	1.61	0.00067	m	3.70E-03	n	no	–	1.81E-01	YES
Di-n-octyl phthalate	0	/	82	0	–		NA		–	–	–	no
1,4-Dioxane	1	/	20	5	0.101	m	6.11E-02	c	YES	1.65E+00	–	YES
Diphenylamine	0	/	82	0	–		9.10E-01	n	–	–	–	no
Diphenylhydrazine	0	/	82	0	–		NA		–	–	–	no
Ethyl methanesulfonate	0	/	82	0	–		NA		–	–	–	no
Hexachloro-1,3-butadiene	0	/	91	0	–		8.62E-03	c	–	–	–	no
Hexachlorobenzene	0	/	82	0	–		1.00E-03	c	–	–	–	no
Hexachlorocyclopentadiene	0	/	82	0	–		5.00E-02	n	–	–	–	no
Hexachloroethane	0	/	82	0	–		3.65E-02	n	–	–	–	no
Methanamine, n-methyl-n-nitroso	0	/	82	0	–		4.20E-06	c	–	–	–	no
2-Methyl-4,6-dinitrophenol	0	/	82	0	–		3.70E-03	n	–	–	–	no
Methyl methanesulfonate	0	/	82	0	–		6.80E-03	c	–	–	–	no
2-Methylphenol	0	/	82	0	–		1.80E+00	n	–	–	–	no
3-Methylphenol	0	/	8	0	–		1.80E+00	n	–	–	–	no
4-Methylphenol	0	/	8	0	–		1.80E-01	n	–	–	–	no
2-Methyl pyridine	0	/	82	0	–		NA		–	–	–	no
1-Naphthylamine	0	/	82	0	–		NA		–	–	–	no
2-Naphthylamine	0	/	82	0	–		3.70E-04	c	–	–	–	no
2-Nitroaniline	0	/	82	0	–		3.70E-01	n	–	–	–	no
3-Nitroaniline	0	/	82	0	–		NA		–	–	–	no
p-Nitroaniline	0	/	82	0	–		3.40E-02	c	–	–	–	no
2-Nitrophenol	0	/	82	0	–		NA		–	–	–	no
4-Nitrophenol	0	/	82	0	–		NA		–	–	–	no
n-Nitrosodi-n-butylamine	0	/	82	0	–		2.44E-05	c	–	–	–	no
n-Nitrosodi-n-propylamine	0	/	82	0	–		9.60E-05	c	–	–	–	no
n-Nitrosopiperidine	0	/	82	0	–		7.20E-05	c	–	–	–	no
Pentachlorobenzene	0	/	82	0	–		2.92E-02	n	–	–	–	no
Pentachlorophenol	0	/	82	0	–		1.00E-03	c	–	–	–	no

Table E.20-HHRA-2
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Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)	Site Groundwater Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Phenacetin	0	/	82	0	–	3.10E-01	c	–	–	–	no
Phenol	0	/	82	0	–	5.00E-03	n	–	–	–	no
Propyzamide	0	/	82	0	–	2.70E+00	n	–	–	–	no
Pyridine	0	/	82	0	–	3.70E-02	n	–	–	–	no
1,2,4,5-Tetrachlorobenzene	0	/	82	0	–	1.10E-02	n	–	–	–	no
Tribromomethane	0	/	91	0	–	8.00E-02	c	–	–	–	no
2,4,5-Trichlorophenol	0	/	82	0	–	3.65E+00	n	–	–	–	no
2,4,6-Trichlorophenol	0	/	82	0	–	3.65E-02	n	–	–	–	no
3,5,5-Trimethyl-2-cyclohexene-1-one	0	/	82	0	–	7.10E-01	c	–	–	–	no
1,3,5-Trinitrobenzene	0	/	62	0	–	1.10E+00	n	–	–	–	no
Polycyclic Aromatic Hydroc [f]											
Acenaphthene	0	/	82	0	–	2.19E+00	n	–	–	–	no
Acenaphthylene	0	/	82	0	–	NA		–	–	–	no
Anthracene	0	/	82	0	–	1.10E+01	n	–	–	–	no
Benzo(a)anthracene	0	/	82	0	–	2.00E-04	c	–	–	–	no
Benzo(a)pyrene	0	/	82	0	–	2.00E-04	c	–	–	–	no
Benzo(b)fluoranthene	0	/	82	0	–	2.00E-04	c	–	–	–	no
Benzo(g,h,i)perylene	0	/	82	0	–	2.00E-04		–	–	–	no
Benzo(k)fluoranthene	0	/	82	0	–	2.00E-04	c	–	–	–	no
1,2-Benzphenanthracene	0	/	82	0	–	2.00E-04	c	–	–	–	no
1-Chloronaphthalene	0	/	82	0	–	2.92E+00	n	–	–	–	no
2-Chloronaphthalene	0	/	82	0	–	2.92E+00	n	–	–	–	no
Dibenz(a,h)anthracene	0	/	82	0	–	2.00E-04	c	–	–	–	no
7,12-Dimethylbenz(a)anthracene	0	/	82	0	–	2.70E-06	c	–	–	–	no
Fluoranthene	0	/	82	0	–	1.46E+00	n	–	–	–	no
Fluorene	0	/	82	0	–	1.46E+00	n	–	–	–	no
Indeno(1,2,3-cd)pyrene	0	/	82	0	–	2.00E-04	c	–	–	–	no
3-Methylchloranthrene	0	/	82	0	–	3.10E-05	c	–	–	–	no
1-Methylnaphthalene	0	/	82	0	–	3.00E-02	c	–	–	–	no
2-Methylnaphthalene	0	/	82	0	–	3.00E-02	n	–	–	–	no
Naphthalene	0	/	91	0	–	3.00E-02	c	–	–	–	no
Phenanthrene	0	/	82	0	–	1.10E+00	n	–	–	–	no
Pyrene	0	/	82	0	–	1.10E+00	n	–	–	–	no
Herbicides											
2,4-D	0	/	12	0	–	7.00E-02	n	–	–	–	no
2,4-DB	0	/	12	0	–	2.90E-01	n	–	–	–	no
Dicamba	0	/	12	0	–	1.10E+00	n	–	–	–	no
2,2-Dichlor0propionic acid	0	/	12	0	–	1.10E+00	n	–	–	–	no
Dichlorprop	0	/	12	0	–	NA		–	–	–	no
MCPP	0	/	12	0	–	3.70E-02	n	–	–	–	no
2,4,5-T	0	/	12	0	–	3.70E-01	n	–	–	–	no
2,4,5-TP (Silvex)	0	/	12	0	–	2.90E-01	n	–	–	–	no
Pesticides											
Aldrin	0	/	24	0	–	3.92E-05	c	–	–	–	no

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Selection of Constituents of Potential Concern in Groundwater - Based on Exposure Point Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
alpha-BHC	0	/	24	0	–		1.10E-04	c	–	–	–	no
alpha-Chlordane	0	/	24	0	–		2.00E-03		–	–	–	no
beta-BHC	0	/	24	0	–		3.73E-04	c	–	–	–	no
Camphechlor	1	/	24	4.17	0.0267	m	3.00E-03	c	YES	8.90E+00	–	YES
4,4-DDD	0	/	24	0	–		2.80E-03	c	–	–	–	no
4,4-DDE	0	/	24	0	–		1.98E-03	c	–	–	–	no
4,4-DDT	0	/	24	0	–		1.98E-03	c	–	–	–	no
delta-BHC	0	/	24	0	–		NA		–	–	–	no
Dieldrin	0	/	24	0	–		4.20E-05	c	–	–	–	no
Endosulfan I	0	/	24	0	–		NA		–	–	–	no
Endosulfan II	0	/	24	0	–		NA		–	–	–	no
Endosulfan sulfate	0	/	24	0	–		NA		–	–	–	no
Endrin	0	/	24	0	–		2.00E-03	n	–	–	–	no
Endrin aldehyde	0	/	24	0	–		NA		–	–	–	no
Endrin ketone	0	/	24	0	–		NA		–	–	–	no
gamma-BHC	0	/	24	0	–		2.00E-04	c	–	–	–	no
gamma-Chlordane	0	/	24	0	–		NA		–	–	–	no
Heptachlor	0	/	24	0	–		4.00E-04	c	–	–	–	no
Heptachlor epoxide	0	/	24	0	–		2.00E-04	c	–	–	–	no
MCPA	0	/	12	0	–		1.80E-02	n	–	–	–	no
Pentachloronitrobenzene	0	/	82	0	–		2.60E-03	c	–	–	–	no
1,1,1-Trichloro-2,2-bis (p-Methoxpheny	0	/	24	0	–		4.00E-02	n	–	–	–	no
Total Petroleum Hydrocarbons (TPH												
Diesel Range Organics (DRO)	0	/	88	0	–		NA		–	–	–	no
Gasoline Range Organics (GRO)	0	/	88	0	–		NA		–	–	–	no
Explosives												
2-Amino-4,6-dinitrotoluene	0	/	6	0	–		7.30E-02	n	–	–	–	no
4-Amino-2,6-dinitrotoluene	0	/	6	0	–		7.30E-02	n	–	–	–	no
4-Amino-dnt / 2-Amino-dnt	0	/	56	0	–		NA		–	–	–	no
2,6-Dinitrotoluene	0	/	82	0	–		3.65E-02	n	–	–	–	no
2,6-DNT / 2,4-DNT	0	/	56	0	–		NA		–	–	–	no
2-Nitrotoluene	0	/	62	0	–		3.05E-03	c	–	–	–	no
3-Nitrotoluene	0	/	62	0	–		7.30E-01	n	–	–	–	no
4-Nitrotoluene	1	/	62	1.61	0.00084	m	4.20E-02	c	no	2.00E-02	–	YES
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tet	0	/	62	0	–		1.80E+00	n	–	–	–	no
RDX	1	/	62	1.61	0.0006	m	6.11E-03	c	no	9.87E-02	–	YES
Tetryl	2	/	62	3.23	0.00241	m	1.46E-01	n	no	–	1.65E-02	YES
2,4,6-Trinitrotoluene	1	/	62	1.61	0.00053	m	1.83E-02	n	no	–	2.88E-02	YES
Inorganics												
Aluminum	9	/	34	26.5	0.491		3.65E+01	n	no	–	1.35E-02	YES
Antimony	6	/	37	16.2	0.0632		6.00E-03	n	YES	–	1.05E+01	YES
Arsenic	12	/	82	14.6	0.03		1.00E-02	c	YES	3.00E+00	–	YES
Barium	53	/	82	64.6	0.0155		1.00E+00	n	no	–	1.55E-02	YES
Beryllium	8	/	71	11.3	0.013		4.00E-03	n	YES	–	3.25E+00	YES

Table E.20-HHRA-2
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Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		Site Groundwater Screening Level [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Boron	34	/	34	100	1.605		7.30E+00	n	no	–	2.20E-01	YES
Cadmium	6	/	93	6.45	0.00122		5.00E-03	n	no	–	2.44E-01	YES
Calcium metal	12	/	12	100	499.8		NA		NA	–	–	no
Chloride	95	/	95	100	1,884		2.50E+02		YES	–	–	YES
Chromium	44	/	94	46.8	2.131		5.00E-02	n	YES	–	4.26E+01	YES
Chromium (Hexavalent)	6	/	22	27.3	0.135		1.00E-01	n	YES	–	1.35E+00	YES
Cobalt	4	/	71	5.63	0.287	m	1.10E-02	n	YES	–	2.61E+01	YES
Copper	37	/	86	43	0.0406		1.00E+00	n	no	–	4.06E-02	YES
Cyanide (Total)	0	/	24	0	–		NA		–	–	–	no
Fluoride	73	/	95	76.8	3.885		1.60E+00		YES	–	–	YES
Iron	19	/	34	55.9	13.39		3.00E-01	n	YES	–	4.46E+01	YES
Lead	1	/	93	1.08	0.013	m	1.50E-02		no	–	–	YES
Lithium	11	/	12	91.7	0.655		7.30E-02	n	YES	–	8.97E+00	YES
Magnesium	12	/	12	100	662.2		NA		NA	–	–	no
Manganese	8	/	34	23.5	0.0595		5.00E-02		YES	–	–	YES
Mercury	0	/	82	0	–		2.00E-03	n	–	–	–	no
Molybdenum	25	/	34	73.5	0.157		1.83E-01	n	no	–	8.60E-01	YES
Nickel	18	/	71	25.4	0.11		7.30E-01	n	no	–	1.51E-01	YES
Nitrate	55	/	55	100	45.73		1.00E+01	n	YES	–	4.57E+00	YES
Phosphorus	19	/	50	38	0.135		NA		NA	–	–	no
Potassium	15	/	15	100	94.97		NA		NA	–	–	no
Selenium	46	/	82	56.1	0.0721		5.00E-02	n	YES	–	1.44E+00	YES
Silver	0	/	94	0	–		5.00E-02	n	–	–	–	no
Sodium	28	/	28	100	2,968		NA		NA	–	–	no
Sulfate	95	/	95	100	7,258		2.50E+02		YES	–	–	YES
Strontium	34	/	34	100	13.86		2.19E+01	n	no	–	6.33E-01	YES
Thallium	0	/	37	0	–		2.00E-03		–	–	–	no
Tin	5	/	71	7.04	0.0452		2.20E+01	n	no	–	2.05E-03	YES
Vanadium	62	/	71	87.3	0.0501		1.83E-01	n	no	–	2.75E-01	YES
Zinc	32	/	94	34	0.0333		5.00E+00	n	no	–	6.66E-03	YES

Total Maximum / Screening Level Ratios	24.1	147
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)	2.E-04	147

Target Organ Max/SL Ratios	
Kidney and Liver	46.6
Brain	NA
Nasal	NA
Eyes	NA
Skin	26.1
Lung	47.4
Gastrointestinal Tract and Forestomach	47.9
Whole Body	12.1
Blood	60.6

Table E.20-HHRA-2
Selection of Constituents of Potential Concern in Groundwater - Based on Exposure Point Concentrations
Regional Groundwater for Protection of Direct Contact
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/L)	Site Groundwater Screening Level [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
					Central Nervous System		0.0003	
					Nervous System		0.01	
					Red Blood Cells		NA	
					Glands		NA	
					Fetus		0.2	
					Immune		0.2	
					Development		0.01	
					Reproduction		NA	
					Not Available/ Not Reported		NA	

Notes:

– = Not applicable.
^ = Maximum SQL exceeds minimum criteria.
mg/kg = Milligrams per kilogram.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the maximum detected concentration.

[b] See Table E.2-4 for sources of groundwater screening levels and explanation of notes.

[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^5 for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1 unless it was an essential nutrient (i.e., calcium, magnesium, potassium, sodium).

Table E.2-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		USEPA Groundwater Screening Level for Protection of Vapor Intrusion [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
Volatile Organic Compounds												
Acetone	1	/	91	1.1	0.0149	0.01		2.20E+02	n	no	–	6.77E-05
Acetophenone	0	/	82	0	–	5		8.00E+02	n	–	–	–
Acrylonitrile	0	/	91	0	–	0.001		8.50E-02	c	–	–	–
Benzene	0	/	91	0	–	0.001		1.40E-02	c	–	–	–
Bis(2-chloroethyl)ether	0	/	82	0	–	5	^	1.00E-01	c	–	–	–
Bis(2-chloroisopropyl)ether	0	/	82	0	–	5		NA	c	–	–	–
Bromobenzene	0	/	91	0	–	0.001		NA	n	–	–	–
Bromodichloromethane	0	/	91	0	–	0.001		2.10E-02	c	–	–	–
Bromomethane	0	/	91	0	–	0.005		2.00E-02	n	–	–	–
2-Butanone	0	/	91	0	–	0.005		4.40E+02	n	–	–	–
tert-Butyl alcohol	0	/	20	0	–	0.005		NA	n	–	–	–
n-Butylbenzene	0	/	91	0	–	0.001		2.60E-01	n	–	–	–
sec-Butylbenzene	0	/	91	0	–	0.001		2.50E-01	n	–	–	–
tert-Butylbenzene	0	/	91	0	–	0.001		2.90E-01	n	–	–	–
Carbon disulfide	1	/	91	1.1	0.00107	0.001		5.60E-01	n	no	–	1.91E-03
Carbon tetrachloride	0	/	91	0	–	0.001		5.00E-03	c	–	–	–
CFC-11	0	/	91	0	–	0.001		1.80E-01	n	–	–	–
CFC-12	0	/	91	0	–	0.001		1.40E-02	n	–	–	–
Chlorobenzene	0	/	91	0	–	0.001		3.90E-01	n	–	–	–
Chlorobromomethane	0	/	91	0	–	0.001		NA	n	–	–	–
Chloroethane	0	/	91	0	–	0.001		2.80E+01	n	–	–	–
2-Chloroethyl vinyl ether	0	/	90	0	–	0.005		NA	n	–	–	–
Chloroform	14	/	91	15.4	0.00214	0.001		8.00E-02	c	no	2.68E-02	–
Chloromethane	1	/	91	1.1	0.00351	0.001		6.70E-02	c	no	5.24E-02	–
2-Chlorophenol	0	/	82	0	–	5	^	1.10E+00	n	–	–	–
2-Chlorotoluene	0	/	91	0	–	0.001		NA	n	–	–	–
4-Chlorotoluene	0	/	91	0	–	0.001		NA	n	–	–	–
Cymene	0	/	91	0	–	0.001		NA	n	–	–	–
Dibenzofuran	0	/	82	0	–	5		NA	n	–	–	–
1,2-Dibromoethane	0	/	91	0	–	0.001		3.60E-03	c	–	–	–
Dibromomethane	0	/	91	0	–	0.001		9.90E-01	n	–	–	–
1,2-Dichlorobenzene	0	/	91	0	–	5	^	2.60E+00	n	–	–	–
1,4-Dichlorobenzene	0	/	91	0	–	5		8.20E+00	c	–	–	–
trans-1,4-Dichlorobutene	0	/	91	0	–	0.01		NA	c	–	–	–
1,1-Dichloroethane	4	/	91	4.4	0.00498	0.001		2.20E+00	c	no	2.26E-03	–
1,2-Dichloroethane	0	/	91	0	–	0.001		2.30E-02	c	–	–	–
1,1-Dichloroethylene	15	/	91	16.5	0.0133	0.001		1.90E-01	n	no	–	7.00E-02
cis-1,2-Dichloroethene	0	/	91	0	–	0.001		2.10E-01	n	–	–	–
trans-1,2-Dichloroethene	0	/	91	0	–	0.001		1.80E-01	n	–	–	–
Dichloromethane	0	/	91	0	–	0.005		5.80E-01	c	–	–	–
1,2-Dichloropropane	0	/	91	0	–	0.001		3.50E-02	c	–	–	–
1,3-Dichloropropane	0	/	91	0	–	0.001		NA	n	–	–	–
2,2-Dichloropropane	0	/	91	0	–	0.001		NA	n	–	–	–
1,1-Dichloropropene	0	/	91	0	–	0.001		NA	c	–	–	–

Table E.2-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples			FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)		USEPA Groundwater Screening Level for Protection of Vapor Intrusion [b] (mg/L)		Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
cis-1,3-Dichloropropene	0	/	91	0	–	0.001		NA	c	–	–	–
trans-1,3-Dichloropropene	0	/	91	0	–	0.001		NA	c	–	–	–
Ethylbenzene	0	/	91	0	–	0.001		7.00E-01	c	–	–	–
Iodomethane	0	/	91	0	–	0.005		NA	n	–	–	–
Isopropylbenzene	0	/	91	0	–	0.001		8.40E-03	n	–	–	–
m-Dichlorobenzene	0	/	91	0	–	5	^	8.30E-01	n	–	–	–
Methyl n-butyl ketone	0	/	91	0	–	0.005		NA	n	–	–	–
Methylbenzene	0	/	91	0	–	0.001		1.50E+00	n	–	–	–
4-Methyl-2-pentanone (MIBK)	0	/	91	0	–	0.005		1.40E+01	n	–	–	–
Methyl tert-butyl ether (MTBE)	2	/	91	2.2	0.00166	0.001		1.20E+02	c	no	1.38E-05	–
Nitrobenzene	0	/	82	0	–	5	^	2.00E+00	c	–	–	–
n-Propylbenzene	0	/	91	0	–	0.001		3.20E-01	n	–	–	–
Styrene (monomer)	0	/	91	0	–	0.001		8.90E+00	n	–	–	–
Tetrachloroethene	1	/	91	1.1	0.00582	0.001		1.10E-02	c	no	5.29E-01	–
1,1,1,2-Tetrachloroethane	0	/	91	0	–	0.001		3.30E-02	c	–	–	–
1,1,2,2-Tetrachloroethane	0	/	91	0	–	0.001		3.00E-02	c	–	–	–
1,1,1-Trichloroethane	0	/	91	0	–	0.001		3.10E+00	n	–	–	–
1,1,2-Trichloroethane	0	/	91	0	–	0.001		4.10E-02	c	–	–	–
1,2,3-Trichlorobenzene	0	/	91	0	–	0.005		NA	n	–	–	–
1,2,3-Trichloropropane	0	/	91	0	–	0.001		2.90E-01	c	–	–	–
1,2,4-Trichlorobenzene	0	/	91	0	–	0.005		3.40E+00	n	–	–	–
1,2,4-Trimethylbenzene	0	/	91	0	–	0.001		2.40E-02	n	–	–	–
1,3,5-Trimethylbenzene	0	/	91	0	–	0.001		2.50E-02	n	–	–	–
Trichloroethylene	38	/	91	41.8	0.171	0.001		5.00E-03	c	YES	3.42E+01	–
Vinyl chloride	0	/	91	0	–	0.001		2.50E-03	c	–	–	–
m,p-Xylene	1	/	91	1.1	0.00329	0.001		2.30E+01	n	no	–	1.43E-04
o-Xylene	0	/	91	0	–	0.001		3.30E+01	n	–	–	–
Semi Volatile Organic Compounds												
n-Nitrosodi-n-butylamine	0	/	82	0	–	5	^	1.20E-03	c	–	–	–
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	0	/	82	0	–	5		NA	n	–	–	–
Acenaphthylene	0	/	82	0	–	5		NA	n	–	–	–
Anthracene	0	/	82	0	–	5		NA	n	–	–	–
1-Chloronaphthalene	0	/	82	0	–	5		NA	n	–	–	–
2-Chloronaphthalene	0	/	82	0	–	5		NA	n	–	–	–
Fluorene	0	/	82	0	–	5		NA	n	–	–	–
1-Methylnaphthalene	0	/	82	0	–	5		NA	c	–	–	–
2-Methylnaphthalene	0	/	82	0	–	5	^	3.30E+00	n	–	–	–
Naphthalene	0	/	91	0	–	0.005		1.50E-01	c	–	–	–
Phenanthrene	0	/	82	0	–	5		NA	n	–	–	–
Total Maximum / Screening Level Ratios											34.8	0.07
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)											3.E-04	0.07
											Target Organ Max/SL Ratios	

Table E.2-HHRA-3
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Maximum Detected Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	Max Detect [a] (mg/L)	Max SQL (mg/L)	USEPA Groundwater Screening Level for Protection of Vapor Intrusion [b] (mg/L)	Is Max > Screening Level?	Max / SL (cancer)	Max / SL (noncancer)
					Kidney and Liver			0.07
					Brain			NA
					Nasal			NA
					Eyes			NA
					Skin			NA
					Lungs			NA
					Gastrointestinal Tract and Forestomach			NA
					Whole Body			0.0001
					Blood			NA
					Nervous System			0.002
					Dental			NA
					Red Blood Cells			NA
					Glands			NA
					Fetus			0.002
					Immune System			NA
					Development			NA
					Reproduction			NA
					Bone			NA
					Not Available/ Not Reported			NA

Notes:

– =	Not applicable.
! =	Constituent was detected and screening level/ toxicity information is not available.
^ =	Maximum SQL exceeds minimum criteria for constituent not detected otherwise.
Max =	Maximum concentration.
mg/L =	Milligrams per liter.
NA =	Not available.
SQL =	Sample Quantification Limit.

[a]	Maximum detected concentration.
[b]	See Table E.2-3 for sources of groundwater screening levels and explanation of notes.

Table E.20-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /		number of samples	FOD %	EPC [a] (mg/L)		USEPA Groundwater Screening Level for Protection of Vapor Intrusion [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
Volatile Organic Compounds												
Acetone	1	/	91	1.1	0.0149	m	2.20E+02	n	no	–	6.77E-05	yes
Acetophenone	0	/	82	0	–		8.00E+02	n	–	–	–	no
Acrylonitrile	0	/	91	0	–		8.50E-02	c	–	–	–	no
Benzene	0	/	91	0	–		1.40E-02	c	–	–	–	no
Bis(2-chloroethyl)ether	0	/	82	0	–		1.00E-01	c	–	–	–	no
Bis(2-chloroisopropyl)ether	0	/	82	0	–		NA	c	–	–	–	no
Bromobenzene	0	/	91	0	–		NA	n	–	–	–	no
Bromodichloromethane	0	/	91	0	–		2.10E-02	c	–	–	–	no
Bromomethane	0	/	91	0	–		2.00E-02	n	–	–	–	no
2-Butanone	0	/	91	0	–		4.40E+02	n	–	–	–	no
tert-Butyl alcohol	0	/	20	0	–		NA	n	–	–	–	no
n-Butylbenzene	0	/	91	0	–		2.60E-01	n	–	–	–	no
sec-Butylbenzene	0	/	91	0	–		2.50E-01	n	–	–	–	no
tert-Butylbenzene	0	/	91	0	–		2.90E-01	n	–	–	–	no
Carbon disulfide	1	/	91	1.1	0.00107	m	5.60E-01	n	no	–	1.91E-03	yes
Carbon tetrachloride	0	/	91	0	–		5.00E-03	c	–	–	–	no
CFC-11	0	/	91	0	–		1.80E-01	n	–	–	–	no
CFC-12	0	/	91	0	–		1.40E-02	n	–	–	–	no
Chlorobenzene	0	/	91	0	–		3.90E-01	n	–	–	–	no
Chlorobromomethane	0	/	91	0	–		NA	n	–	–	–	no
Chloroethane	0	/	91	0	–		2.80E+01	n	–	–	–	no
2-Chloroethyl vinyl ether	0	/	90	0	–		NA	n	–	–	–	no
Chloroform	14	/	91	15.4	0.00114		8.00E-02	c	no	1.43E-02	–	yes
Chloromethane	1	/	91	1.1	0.00351	m	6.70E-02	c	no	5.24E-02	–	yes
2-Chlorophenol	0	/	82	0	–		1.10E+00	n	–	–	–	no
2-Chlorotoluene	0	/	91	0	–		NA	n	–	–	–	no
4-Chlorotoluene	0	/	91	0	–		NA	n	–	–	–	no
Cymene	0	/	91	0	–		NA	n	–	–	–	no
Dibenzofuran	0	/	82	0	–		NA	n	–	–	–	no
1,2-Dibromoethane	0	/	91	0	–		3.60E-03	c	–	–	–	no
Dibromomethane	0	/	91	0	–		9.90E-01	n	–	–	–	no
1,2-Dichlorobenzene	0	/	91	0	–		2.60E+00	n	–	–	–	no
1,4-Dichlorobenzene	0	/	91	0	–		8.20E+00	c	–	–	–	no
trans-1,4-Dichlorobutene	0	/	91	0	–		NA	c	–	–	–	no
1,1-Dichloroethane	4	/	91	4.4	0.00498	m	2.20E+00	c	no	2.26E-03	–	yes
1,2-Dichloroethane	0	/	91	0	–		2.30E-02	c	–	–	–	no
1,1-Dichloroethylene	15	/	91	16.5	0.00254		1.90E-01	n	no	–	1.34E-02	yes
cis-1,2-Dichloroethene	0	/	91	0	–		2.10E-01	n	–	–	–	no
trans-1,2-Dichloroethene	0	/	91	0	–		1.80E-01	n	–	–	–	no
Dichloromethane	0	/	91	0	–		5.80E-01	c	–	–	–	no
1,2-Dichloropropane	0	/	91	0	–		3.50E-02	c	–	–	–	no
1,3-Dichloropropane	0	/	91	0	–		NA	n	–	–	–	no
2,2-Dichloropropane	0	/	91	0	–		NA	n	–	–	–	no
1,1-Dichloropropene	0	/	91	0	–		NA	c	–	–	–	no

Table E.20-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects /	number of samples	FOD %	EPC [a] (mg/L)		USEPA Groundwater Screening Level for Protection of Vapor Intrusion [b] (mg/L)		Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
cis-1,3-Dichloropropene	0	/ 91	0	–		NA	c	–	–	–	no
trans-1,3-Dichloropropene	0	/ 91	0	–		NA	c	–	–	–	no
Ethylbenzene	0	/ 91	0	–		7.00E-01	c	–	–	–	no
Iodomethane	0	/ 91	0	–		NA	n	–	–	–	no
Isopropylbenzene	0	/ 91	0	–		8.40E-03	n	–	–	–	no
m-Dichlorobenzene	0	/ 91	0	–		8.30E-01	n	–	–	–	no
Methyl n-butyl ketone	0	/ 91	0	–		NA	n	–	–	–	no
Methylbenzene	0	/ 91	0	–		1.50E+00	n	–	–	–	no
4-Methyl-2-pentanone (MIBK)	0	/ 91	0	–		1.40E+01	n	–	–	–	no
Methyl tert-butyl ether (MTBE)	2	/ 91	2.2	0.00166	m	1.20E+02	c	no	1.38E-05	–	yes
Nitrobenzene	0	/ 82	0	–		2.00E+00	c	–	–	–	no
n-Propylbenzene	0	/ 91	0	–		3.20E-01	n	–	–	–	no
Styrene (monomer)	0	/ 91	0	–		8.90E+00	n	–	–	–	no
Tetrachloroethene	1	/ 91	1.1	0.00582	m	1.10E-02	c	no	5.29E-01	–	yes
1,1,1,2-Tetrachloroethane	0	/ 91	0	–		3.30E-02	c	–	–	–	no
1,1,2,2-Tetrachloroethane	0	/ 91	0	–		3.00E-02	c	–	–	–	no
1,1,1-Trichloroethane	0	/ 91	0	–		3.10E+00	n	–	–	–	no
1,1,2-Trichloroethane	0	/ 91	0	–		4.10E-02	c	–	–	–	no
1,2,3-Trichlorobenzene	0	/ 91	0	–		NA	n	–	–	–	no
1,2,3-Trichloropropane	0	/ 91	0	–		2.90E-01	c	–	–	–	no
1,2,4-Trichlorobenzene	0	/ 91	0	–		3.40E+00	n	–	–	–	no
1,2,4-Trimethylbenzene	0	/ 91	0	–		2.40E-02	n	–	–	–	no
1,3,5-Trimethylbenzene	0	/ 91	0	–		2.50E-02	n	–	–	–	no
Trichloroethylene	38	/ 91	41.8	0.0443		5.00E-03	c	YES	8.86E+00	–	yes
Vinyl chloride	0	/ 91	0	–		2.50E-03	c	–	–	–	no
m,p-Xylene	1	/ 91	1.1	0.00329	m	2.30E+01	n	no	–	1.43E-04	yes
o-Xylene	0	/ 91	0	–		3.30E+01	n	–	–	–	no
Semi Volatile Organic Compounds											
n-Nitrosodi-n-butylamine	0	/ 82	0	–		1.20E-03	c	–	–	–	no
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	0	/ 82	0	–		NA	n	–	–	–	no
Acenaphthylene	0	/ 82	0	–		NA	n	–	–	–	no
Anthracene	0	/ 82	0	–		NA	n	–	–	–	no
1-Chloronaphthalene	0	/ 82	0	–		NA	n	–	–	–	no
2-Chloronaphthalene	0	/ 82	0	–		NA	n	–	–	–	no
Fluorene	0	/ 82	0	–		NA	n	–	–	–	no
1-Methylnaphthalene	0	/ 82	0	–		NA	c	–	–	–	no
2-Methylnaphthalene	0	/ 82	0	–		3.30E+00	n	–	–	–	no
Naphthalene	0	/ 91	0	–		1.50E-01	c	–	–	–	no
Phenanthrene	0	/ 82	0	–		NA	n	–	–	–	no
Total Maximum / Screening Level Ratios									9	0.02	
Total Maximum / Screening Level Risk (multiply cancer ratio by 1E-5 and non cancer ratio by 1)									9.E-05	0.02	
								Target Organ Max/SL Ratios			

Table E.20-HHRA-4
Selection of Constituents of Potential Concern for the Vapor Intrusion Pathway - Based on Exposure Point Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Volatile Constituent	Frequency of Detection (FOD) number of detects / number of samples	FOD %	EPC [a] (mg/L)	USEPA Groundwater Screening Level for Protection of Vapor Intrusion [b] (mg/L)	Is EPC > Screening Level?	EPC / SL (cancer)	EPC / SL (noncancer)	Constituent of Potential Concern (COPC)? [c]
					Kidney and Liver		0.01	
					Brain		NA	
					Nasal		NA	
					Eyes		NA	
					Skin		NA	
					Lungs		NA	
					Gastrointestinal Tract and Forestomach		NA	
					Whole Body		0.0001	
					Blood		NA	
					Nervous System		0.002	
					Dental		NA	
					Red Blood Cells		NA	
					Glands		NA	
					Fetus		0.002	
					Immune System		NA	
					Development		NA	
					Reproduction		NA	
					Bone		NA	
					Not Available/ Not Reported		NA	

Notes:
– = Not applicable.
mg/L = Milligrams per liter.
NA = Not available.
SQL = Sample Quantification Limit.

[a] The exposure point concentrations (EPCs) were upper confidence level on the mean (UCL) or the maximum concentration where the UCL was incalculable. EPCs marked with "m" are based on the
[b] See Table E.2-3 for sources of groundwater screening levels and explanation of notes.
[c] Constituents were selected as COPCs if the screening risk (Exposure Point Concentration/Screening Level) exceeded 1 x 10^{-5} for cancer effects and/or 1 for non-cancer effects, and any of the sums for target organ ratios also exceeded 1.

Table E.20-HHRA-5
Exposure Point Concentrations
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent of Potential Concern (COPC)	COPC? [a]	Exposure Point Concentrations [b]	
	Groundwater (YES/no)	Groundwater (mg/L)	
Volatile Organic Compounds			
Acetone	YES	1.49E-02	m
Carbon disulfide	YES	1.07E-03	m
Chloroform	YES	1.14E-03	
Chloromethane	YES	3.51E-03	m
1,1-Dichloroethane	YES	4.98E-03	m
1,1-Dichloroethylene	YES	2.54E-03	
Isopropyl alcohol	YES	6.46E-02	m
Methyl tert-butyl ether (MTBE)	YES	1.66E-03	m
Tetrachloroethene	YES	5.82E-03	m
Trichloroethylene	YES	4.43E-02	
m,p-Xylene	YES	3.29E-03	m
m-Dinitrobenzene	YES	6.69E-04	m
1,4-Dioxane	YES	1.01E-01	m
Camphechlor	YES	2.67E-02	m
4-Nitrotoluene	YES	8.41E-04	m
RDX	YES	6.03E-04	m
Tetryl	YES	2.41E-03	m
2,4,6-Trinitrotoluene	YES	5.25E-04	m
Aluminum	YES	4.91E-01	
Antimony	YES	6.32E-02	
Arsenic	YES	3.00E-02	
Barium	YES	1.55E-02	
Beryllium	YES	1.30E-02	
Boron	YES	1.61E+00	
Cadmium	YES	1.22E-03	
Chloride	YES	1.88E+03	
Chromium	YES	2.13E+00	
Chromium (Hexavalent)	YES	1.35E-01	
Cobalt	YES	2.87E-01	m
Copper	YES	4.06E-02	
Fluoride	YES	3.89E+00	
Iron	YES	1.34E+01	
Lead	YES	1.30E-02	m
Lithium	YES	6.55E-01	
Manganese	YES	5.95E-02	
Molybdenum	YES	1.57E-01	
Nickel	YES	1.10E-01	
Nitrate	YES	4.57E+01	
Selenium	YES	7.21E-02	
Sulfate	YES	7.26E+03	
Strontium	YES	1.39E+01	
Tin	YES	4.52E-02	
Vanadium	YES	5.01E-02	
Zinc	YES	3.33E-02	

Notes:
– = Not detected/ not analyzed/ not applicable.
CASN = Chemical abstracts registry number.
mg/kg = Milligrams per kilogram.
mg/L = Milligrams per liter.

[a] Constituent of Potential Concern.
[b] The exposure point concentration (EPC) was the upper confidence level on the mean (UCL) or the maximum concentra
EPCs marked with "m" are based on the maximum detected concentration.
Exposure to lead is evaluated by predicting resultant blood lead levels using the arithmetic average (avg).
The UCLs were calculated using ProUCL 4.0. The UCL used is the one recommended by ProUCL 4.0.

Table E.16-HHRA-6
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Groundwater
Future Scenario
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Chemical CAS No. (numbers only, no dashes)	Initial Groundwater Concentration C_W (µg/L)	Chemical
67641	15	Acetone
75150	1.1	Carbon disulfide
67663	1.14	Chloroform
74873	3.5	Methyl chloride
75343	5.0	1,1-Dichloroethane
75354	2.54	1,1-Dichloroethylene
1634044	1.66	MTBE
127184	5.8	Tetrachloroethylene
79016	44.3	Trichloroethylene
108383	3.3	m-Xylene

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
16.7	15	2286	2286	0	0	A	SCL	SCL		

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	(Lookup Soil Parameters)			
SCL	1.55	0.44	0.26				

(Lookup Soil Parameters)

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)
10	40	1000	1000	244	0.1	0.25

Table E.16-HHRA-7
Summary of Input Parameters
Estimating Vapor Concentrations in Indoor Air Migrating from Groundwater
Future Scenario
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Chemical Name	Enthalpy of vaporization at ave. gw temp $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. gw temp H_{TS} (atm-m^3/mol)	Henry's law constant at ave. gw temp H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_{A} (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_{T} (cm^2/s)	Source vapor conc., C_{source} (μg/m^3)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)
Acetone	7,476	2.70E-05	1.13E-03	1.77E-04	2.71E-03	1.71E-03	2.69E-03	1.69E+01	1.36E+00	2.71E-03	2.93E+05	3.86E-05	6.51E-04
Carbon disulfide	6,630	2.19E-02	9.22E-01	1.77E-04	1.78E-03	3.13E-04	1.69E-03	9.87E+02	1.36E+00	1.78E-03	2.06E+08	2.95E-05	2.91E-02
Chloroform	7,485	2.55E-03	1.07E-01	1.77E-04	1.78E-03	3.24E-04	1.70E-03	1.22E+02	1.36E+00	1.78E-03	1.96E+08	2.96E-05	3.61E-03
Methyl chloride	4,667	7.02E-03	2.95E-01	1.77E-04	2.16E-03	3.81E-04	2.05E-03	1.04E+03	1.36E+00	2.16E-03	7.26E+06	3.32E-05	3.44E-02
1,1-Dichloroethane	7,376	3.92E-03	1.65E-01	1.77E-04	1.27E-03	2.31E-04	1.21E-03	8.22E+02	1.36E+00	1.27E-03	4.20E+11	2.36E-05	1.94E-02
1,1-Dichloroethylene	6,348	1.92E-02	8.05E-01	1.77E-04	1.54E-03	2.72E-04	1.46E-03	2.05E+03	1.36E+00	1.54E-03	4.04E+09	2.68E-05	5.49E-02
MTBE	7,208	4.40E-04	1.85E-02	1.77E-04	1.78E-03	3.83E-04	1.71E-03	3.07E+01	1.36E+00	1.78E-03	1.95E+08	2.97E-05	9.13E-04
Tetrachloroethylene	9,485	1.16E-02	4.88E-01	1.77E-04	1.23E-03	2.18E-04	1.17E-03	2.84E+03	1.36E+00	1.23E-03	1.01E+12	2.30E-05	6.54E-02
Trichloroethylene	8,474	6.82E-03	2.87E-01	1.77E-04	1.35E-03	2.41E-04	1.29E-03	1.27E+04	1.36E+00	1.35E-03	8.59E+10	2.46E-05	3.12E-01
m-Xylene	10,177	4.48E-03	1.88E-01	1.77E-04	1.20E-03	2.16E-04	1.14E-03	6.19E+02	1.36E+00	1.20E-03	2.15E+12	2.26E-05	1.40E-02

Table E.20-HHRA-8
Risk and Hazard Calculations for the Hypothetical Current/Future Commercial/Industrial Worker Receptor from Exposure to Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Current/Future
Receptor Population: Commercial/Industrial Worker
Receptor Age: Adult

Constituent	FOD	EPCgw (mg/L)		DA [a] (L/cm²/day)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
						ELCRo	ELCRd	ELCRi	ELCR		HQo	HQd	HQi	HI	
Volatile Organic Compounds															
Acetone	1 / 91	1.49E-02	m	3.37E-07	[1]	NA	NA	NA	NA	–	1.5E-04	1.6E-07	4.9E-05	2.0E-04	0.0012%
Carbon disulfide	1 / 91	1.07E-03	m	1.29E-05	[1]	NA	NA	NA	NA	–	9.4E-05	4.0E-06	1.6E-04	2.6E-04	0.0016%
Chloroform	14 / 91	1.14E-03		6.64E-06	[1]	NA	NA	9.6E-07	9.6E-07	0.35%	1.0E-03	2.2E-05	1.2E-03	2.2E-03	0.014%
Chloromethane	1 / 91	3.51E-03	m	2.04E-06	[1]	NA	NA	NA	NA	–	NA	NA	4.0E-03	4.0E-03	0.025%
1,1-Dichloroethane	4 / 91	4.98E-03	m	5.71E-06	[1]	8.9E-08	1.7E-09	2.9E-07	3.8E-07	0.14%	2.2E-04	4.1E-06	NA	2.2E-04	0.0014%
1,1-Dichloroethylene	15 / 91	2.54E-03		1.01E-05	[1]	NA	NA	NA	NA	–	4.5E-04	1.5E-05	1.3E-03	1.8E-03	0.011%
Isopropyl alcohol	1 / 20	6.46E-02	m	5.22E-07	[1]	NA	NA	NA	NA	–	NA	NA	9.5E-04	9.5E-04	0.006%
Methyl tert-Butyl Ether (MTBE)	2 / 91	1.66E-03	m	2.70E-06	[1]	9.4E-09	8.4E-11	1.6E-08	2.5E-08	0.01%	NA	NA	5.7E-05	5.7E-05	0.0004%
Tetrachloroethene	1 / 91	5.82E-03	m	4.35E-05	[1]	9.9E-06	1.4E-06	1.3E-06	1.3E-05	5%	5.1E-03	7.4E-04	2.2E-03	8.1E-03	0.05%
Trichloroethylene	38 / 91	4.43E-02		1.26E-05	[1]	8.2E-07	3.4E-08	3.3E-06	4.1E-06	1.5%	NA	NA	NA	NA	–
m,p-Xylene	1 / 91	3.29E-03	m	4.75E-05	[1]	NA	NA	NA	NA	–	1.4E-04	2.3E-05	4.8E-04	6.5E-04	0.0041%
Semi Volatile Organic Compounds															
m-Dinitrobenzene	1 / 62	6.69E-04	m	0.00E+00	[1]	NA	NA	NA	NA	–	5.9E-02	0.0E+00	NA	5.9E-02	0.4%
1,4-Dioxane	1 / 20	1.01E-01	m	2.62E-07	[1]	3.5E-06	3.0E-09	NA	3.5E-06	1.3%	8.9E-03	7.7E-06	NA	8.9E-03	0.06%
Pesticides															
Camphechlor	1 / 24	2.67E-02	m	6.28E-05	[1]	9.2E-05	1.9E-05	NA	1.1E-04	41%	NA	NA	NA	NA	–
Explosives															
4-Nitrotoluene	1 / 62	8.41E-04	m	1.08E-05	[1]	4.2E-08	NA	NA	4.2E-08	0.02%	1.9E-03	NA	NA	1.9E-03	0.012%
RDX	1 / 62	6.03E-04	m	6.49E-07	[1]	2.1E-07	4.5E-10	NA	2.1E-07	0.08%	1.8E-03	3.8E-06	NA	1.8E-03	0.011%
Tetryl	2 / 62	2.41E-03	m	1.40E-06	[1]	NA	NA	NA	NA	–	2.1E-02	9.8E-05	NA	2.1E-02	0.13%
2,4,6-Trinitrotoluene	1 / 62	5.25E-04	m	1.95E-06	[1]	5.0E-08	3.2E-10	NA	5.0E-08	0.02%	9.2E-03	6.0E-05	NA	9.3E-03	0.06%
Inorganics															
Aluminum	9 / 34	4.91E-01		2.50E-07	[0]	NA	NA	NA	NA	–	4.3E-03	3.6E-06	NA	4.3E-03	0.03%
Antimony	6 / 37	6.32E-02		2.50E-07	[0]	NA	NA	NA	NA	–	1.4E+00	7.7E-03	NA	1.4E+00	9%
Arsenic	12 / 82	3.00E-02		2.50E-07	[0]	1.4E-04	1.2E-07	NA	1.4E-04	52%	8.8E-01	7.3E-04	NA	8.8E-01	5%
Barium	53 / 82	1.55E-02		2.50E-07	[0]	NA	NA	NA	NA	–	6.8E-04	8.0E-06	NA	6.9E-04	0.004%
Beryllium	8 / 71	1.30E-02		2.50E-07	[0]	NA	NA	NA	NA	–	5.7E-02	6.7E-03	NA	6.4E-02	0.4%
Boron	34 / 34	1.61E+00		2.50E-07	[0]	NA	NA	NA	NA	–	7.1E-02	5.8E-05	NA	7.1E-02	0.4%
Cadmium	6 / 93	1.22E-03		2.50E-07	[0]	NA	NA	NA	NA	–	2.1E-02	7.1E-04	NA	2.2E-02	0.14%
Chloride	95 / 95	1.88E+03		2.50E-07	[0]	NA	NA	NA	NA	–	NA	NA	NA	NA	–
Chromium	44 / 94	2.13E+00		5.00E-07	[0]	NA	NA	NA	NA	–	NA	NA	NA	NA	–
Chromium (Hexavalent)	6 / 22	1.35E-01		5.00E-07	[0]	NA	NA	NA	NA	–	4.0E-01	6.5E-04	NA	4.0E-01	2%
Cobalt	4 / 71	2.87E-01	m	1.00E-07	[0]	NA	NA	NA	NA	–	8.4E+00	2.8E-03	NA	8.4E+00	53%
Copper	37 / 86	4.06E-02		2.50E-07	[0]	NA	NA	NA	NA	–	8.9E-03	7.4E-06	NA	8.9E-03	0.06%
Fluoride	73 / 95	3.89E+00		2.50E-07	[0]	NA	NA	NA	NA	–	5.7E-01	4.7E-04	NA	5.7E-01	4%
Iron	19 / 34	1.34E+01		2.50E-07	[0]	NA	NA	NA	NA	–	1.7E-01	1.4E-04	NA	1.7E-01	1.1%
Lead	1 / 93	1.30E-02	m	2.50E-08	[0]	NA	NA	NA	NA	–	NA	NA	NA	NA	–
Lithium	11 / 12	6.55E-01		2.50E-07	[0]	NA	NA	NA	NA	–	2.9E+00	2.4E-03	NA	2.9E+00	18%
Manganese	8 / 34	5.95E-02		2.50E-07	[0]	NA	NA	NA	NA	–	2.2E-02	4.5E-04	NA	2.2E-02	0.1%
Molybdenum	25 / 34	1.57E-01		2.50E-07	[0]	NA	NA	NA	NA	–	2.8E-01	2.3E-04	NA	2.8E-01	1.7%
Nickel	18 / 71	1.10E-01		5.00E-08	[0]	NA	NA	NA	NA	–	4.8E-02	2.0E-04	NA	4.9E-02	0.3%
Nitrate	55 / 55	4.57E+01		2.50E-07	[0]	NA	NA	NA	NA	–	2.5E-01	2.1E-04	NA	2.5E-01	1.6%
Selenium	46 / 82	7.21E-02		2.50E-07	[0]	NA	NA	NA	NA	–	1.3E-01	1.0E-04	NA	1.3E-01	0.8%
Sulfate	95 / 95	7.26E+03		2.50E-07	[0]	NA	NA	NA	NA	–	NA	NA	NA	NA	–

Table E.20-HHRA-8
Risk and Hazard Calculations for the Hypothetical Current/Future Commercial/Industrial Worker Receptor from Exposure to Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Current/Future
Receptor Population: Commercial/Industrial Worker
Receptor Age: Adult

Constituent	FOD	EPCgw (mg/L)	DA [a] (L/cm²/day)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
Strontium	34 / 34	1.39E+01	2.50E-07	[0]	NA	NA	NA	NA	–	2.0E-01	1.7E-04	NA	2.0E-01	1.3%
Tin	5 / 71	4.52E-02	2.50E-07	[0]	NA	NA	NA	NA	–	6.6E-04	5.5E-07	NA	6.6E-04	0.004%
Vanadium	62 / 71	5.01E-02	2.50E-07	[0]	NA	NA	NA	NA	–	8.8E-02	2.8E-03	NA	9.1E-02	1%
Zinc	32 / 94	3.33E-02	1.50E-07	[0]	NA	NA	NA	NA	–	9.8E-04	4.8E-07	NA	9.8E-04	0.006%
					Total ELCR			3E-04	100%	Total HI **			20	100%

** HI Segregated by Target Site/Critical Effect:

HI (liver, kidney) =	0.3	HI (fetus, developmental) =	0.08	HI (cardiovascular) =	NA
HI (CNS, whole body) =	2	HI (forestomach, intestine) =	0.2	HI (skin, vascular) =	9
HI (blood, RBCs) =	1	HI (nasal, lung) =	NA	HI (NA, NR) =	3

[a] The dermal absorption factor was calculated using Equation [0], [1], or [2], as indicated, from Table E.2-12.

—	Not applicable.	HQ	Hazard quotient.	NA	Not available.
ELCR	Excess lifetime cancer risk.	L/cm²/day	Liters per square centimeter per day.	NC	Not evaluated as a carcinogen.
EPCgw	Exposure point concentration in groundwater.	L/m³	Liters per cubic meter.	K	Andelman volatilization factor (L/m³)
HI	Hazard index (sum of the HQs).	mg/L	Milligrams per liter.	pCi/L	Picocuries per liter.
FOC	Frequency of detection.				

Equations:

ELCRo = (EPCgw × 1 × 225 × 25 × CSFo) / (70 × 25,550)
ELCRd = (EPCgw × DA × 3,300 × 225 × 25 × CSFa) / (70 × 25,550)
ELCRi = (EPCgw × K × 0.042 × 8 x 225 × 25 × URF) / (25,550)

HQo = (EPCgw × 1 × 225 × 25) / (70 × 9,125 × RfDo)
HQd = (EPCgw × DA × 3,300 × 225 × 25) / (70 × 9,125 × RfDa)
HQi = (EPCgw × K × 0.042 × 8 × 225 × 25) / (9,125 × RfC)

Table E.20-HHRA-9
Risk and Hazard Calculations for the Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	FOD	EPCgw (mg/L)		DAadj [a] (L/cm²/day)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR
						ELCRo	ELCRd	ELCRi	ELCR	
Volatile Organic Compounds										
Acetone	1 / 91	1.49E-02	m	5.72E-07	[2]	NA	NA	NA	NA	–
Carbon disulfide	1 / 91	1.07E-03	m	2.09E-05	[2]	NA	NA	NA	NA	–
Chloroform	14 / 91	1.14E-03		1.08E-05	[1]	NA	NA	1.3E-04	1.3E-04	5.5%
Chloromethane	1 / 91	3.51E-03	m	3.49E-06	[2]	NA	NA	NA	NA	–
1,1-Dichloroethane	4 / 91	4.98E-03	m	9.27E-06	[2]	4.3E-07	3.2E-08	3.9E-05	4.0E-05	1.68%
1,1-Dichloroethylene	15 / 91	2.54E-03		1.64E-05	[2]	NA	NA	NA	NA	–
Isopropyl alcohol	1 / 20	6.46E-02	m	8.82E-07	[2]	NA	NA	NA	NA	–
Methyl tert-Butyl Ether (MTBE)	2 / 91	1.66E-03	m	4.39E-06	[2]	4.5E-08	1.6E-09	2.1E-06	2.2E-06	0.09%
Tetrachloroethene	1 / 91	5.82E-03	m	7.07E-05	[1]	4.7E-05	2.7E-05	1.7E-04	2.4E-04	10%
Trichloroethylene	38 / 91	4.43E-02		2.05E-05	[1]	3.9E-06	6.5E-07	4.4E-04	4.4E-04	18.7%
m,p-Xylene	1 / 91	3.29E-03	m	7.71E-05	[1]	NA	NA	NA	NA	–
Semi Volatile Organic Compounds				–						
m-Dinitrobenzene	1 / 62	6.69E-04	m	0.00E+00	[1]	NA	NA	NA	NA	–
1,4-Dioxane	1 / 20	1.01E-01	m	4.26E-07	[2]	1.7E-05	5.7E-08	NA	1.7E-05	0.7%
Pesticides				–						
Camphechlor	1 / 24	2.67E-02	m	1.02E-04	[1]	4.4E-04	3.6E-04	NA	8.0E-04	34%
Explosives				–						
4-Nitrotoluene	1 / 62	8.41E-04	m	1.75E-05	[1]	2.0E-07	NA	NA	2.0E-07	0.009%
RDX	1 / 62	6.03E-04	m	1.05E-06	[1]	1.0E-06	8.4E-09	NA	1.0E-06	0.04%
Tetryl	2 / 62	2.41E-03	m	2.28E-06	[1]	NA	NA	NA	NA	–
2,4,6-Trinitrotoluene	1 / 62	5.25E-04	m	3.18E-06	[1]	2.4E-07	6.0E-09	NA	2.4E-07	0.010%
Inorganics				–						
Aluminum	9 / 34	4.91E-01		6.60E-07	[0]	NA	NA	NA	NA	–
Antimony	6 / 37	6.32E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Arsenic	12 / 82	3.00E-02		6.60E-07	[0]	6.8E-04	3.6E-06	NA	6.8E-04	29%
Barium	53 / 82	1.55E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Beryllium	8 / 71	1.30E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Boron	34 / 34	1.61E+00		6.60E-07	[0]	NA	NA	NA	NA	–
Cadmium	6 / 93	1.22E-03		6.60E-07	[0]	NA	NA	NA	NA	–
Chloride	95 / 95	1.88E+03		6.60E-07	[0]	NA	NA	NA	NA	–
Chromium	44 / 94	2.13E+00		1.32E-06	[0]	NA	NA	NA	NA	–

Table E.20-HHRA-9
Risk and Hazard Calculations for the Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	FOD	EPCgw (mg/L)		DAadj [a] (L/cm²/day)		CANCER RISK Route-Specific Risk Oral	Dermal	Inhalation	Calculated Risk	Percent Total ELCR
Chromium (Hexavalent)	6 / 22	1.35E-01		1.32E-06	[0]	NA	NA	NA	NA	–
Cobalt	4 / 71	2.87E-01	m	2.64E-07	[0]	NA	NA	NA	NA	–
Copper	37 / 86	4.06E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Fluoride	73 / 95	3.89E+00		6.60E-07	[0]	NA	NA	NA	NA	–
Iron	19 / 34	1.34E+01		6.60E-07	[0]	NA	NA	NA	NA	–
Lead	1 / 93	1.30E-02	m	6.60E-08	[0]	NA	NA	NA	NA	–
Lithium	11 / 12	6.55E-01		6.60E-07	[0]	NA	NA	NA	NA	–
Manganese	8 / 34	5.95E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Molybdenum	25 / 34	1.57E-01		6.60E-07	[0]	NA	NA	NA	NA	–
Nickel	18 / 71	1.10E-01		1.32E-07	[0]	NA	NA	NA	NA	–
Nitrate	55 / 55	4.57E+01		6.60E-07	[0]	NA	NA	NA	NA	–
Selenium	46 / 82	7.21E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Sulfate	95 / 95	7.26E+03		6.60E-07	[0]	NA	NA	NA	NA	–
Strontium	34 / 34	1.39E+01		6.60E-07	[0]	NA	NA	NA	NA	–
Tin	5 / 71	4.52E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Vanadium	62 / 71	5.01E-02		6.60E-07	[0]	NA	NA	NA	NA	–
Zinc	32 / 94	3.33E-02		3.96E-07	[0]	NA	NA	NA	NA	–
						Total ELCR			2E-03	100%

[a] The dermal absorption factor was calculated using Equation [0], [1], or [2], as indicated, from Table E.2-15.
[b] The cancer risk for radiometrics was calculated for adult resident receptors.

—	Not applicable.
ELCR	Excess lifetime cancer risk.
EPCgw	Exposure point concentration in groundwater.
pCi/L	Picocuries per liter.
K	Andelman volatilization factor (L/m^3)
$L/cm^2/day$	Liters per square centimeter per day.
L/m^3	Liters per cubic meter.
mg/L	Milligrams per liter.
FOC	Frequency of detection.

Equations:
ELCRo = (EPCgw × 1.1 × 350 × CSFo) / (25,550)
ELCRd = (EPCgw × DAadj × 8,811 × 350 × CSFa) / (25,550)
ELCRi (VOCs only) = (EPCgw × K × 24 x 350 × 30 × URF) / (25,550)

Table E.20-HHRA-10
Risk and Hazard Calculations for the Hypothetical Future Child Resident Receptor from Exposure to Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	COPC?	FOD			EPCgw (mg/L)		DA [a] (L/cm²/day)		NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
									HQo	HQd	HQi	HI	
Volatile Organic Compounds													
Acetone	YES	1	/	91	1.49E-02	m	7.49E-07	[2]	1.1E-03	5.2E-06	5.5E-03	6.6E-03	0.0055%
Carbon disulfide	YES	1	/	91	1.07E-03	m	2.68E-05	[2]	6.8E-04	1.2E-04	1.8E-02	1.8E-02	0.015%
Chloroform	YES	14	/	91	1.14E-03		1.33E-05	[1]	7.3E-03	6.4E-04	1.3E-01	1.4E-01	0.12%
Chloromethane	YES	1	/	91	3.51E-03	m	4.60E-06	[2]	NA	NA	4.5E-01	4.5E-01	0.38%
1,1-Dichloroethane	YES	4	/	91	4.98E-03	m	1.18E-05	[2]	1.6E-03	1.2E-04	NA	1.7E-03	0.001%
1,1-Dichloroethylene	YES	15	/	91	2.54E-03		2.08E-05	[2]	3.2E-03	4.5E-04	1.5E-01	1.5E-01	0.126%
Isopropyl alcohol	YES	1	/	20	6.46E-02	m	1.15E-06	[2]	NA	NA	1.1E-01	1.1E-01	0.089%
Methyl tert-Butyl Ether (MTBE)	YES	2	/	91	1.66E-03	m	5.63E-06	[2]	NA	NA	6.4E-03	6.4E-03	0.0054%
Tetrachloroethene	YES	1	/	91	5.82E-03	m	8.70E-05	[1]	3.7E-02	2.1E-02	2.5E-01	3.1E-01	0.26%
Trichloroethylene	YES	38	/	91	4.43E-02		2.53E-05	[1]	NA	NA	NA	NA	–
m,p-Xylene	YES	1	/	91	3.29E-03	m	9.49E-05	[1]	1.1E-03	6.6E-04	5.4E-02	5.6E-02	0.047%
Semi Volatile Organic Compounds													
m-Dinitrobenzene	YES	1	/	62	6.69E-04	m	0.00E+00	[1]	4.3E-01	0.0E+00	NA	4.3E-01	0.4%
1,4-Dioxane	YES	1	/	20	1.01E-01	m	5.48E-07	[2]	6.5E-02	2.3E-04	NA	6.5E-02	0.054%
Pesticides													
Camphechlor	YES	1	/	24	2.67E-02	m	1.26E-04	[1]	NA	NA	NA	NA	–
Explosives													
4-Nitrotoluene	YES	1	/	62	8.41E-04	m	2.16E-05	[1]	1.3E-02	NA	NA	1.3E-02	0.011%
RDX	YES	1	/	62	6.03E-04	m	1.30E-06	[1]	1.3E-02	1.1E-04	NA	1.3E-02	0.011%
Tetryl	YES	2	/	62	2.41E-03	m	2.81E-06	[1]	1.5E-01	2.9E-03	NA	1.6E-01	0.13%
2,4,6-Trinitrotoluene	YES	1	/	62	5.25E-04	m	3.91E-06	[1]	6.7E-02	1.7E-03	NA	6.9E-02	0.06%
Inorganics													
Aluminum	YES	9	/	34	4.91E-01		1.00E-06	[0]	3.1E-02	2.1E-04	NA	3.2E-02	0.03%
Antimony	YES	6	/	37	6.32E-02		1.00E-06	[0]	1.0E+01	4.4E-01	NA	1.1E+01	9%
Arsenic	YES	12	/	82	3.00E-02		1.00E-06	[0]	6.4E+00	4.2E-02	NA	6.4E+00	5%
Barium	YES	53	/	82	1.55E-02		1.00E-06	[0]	5.0E-03	4.7E-04	NA	5.4E-03	0.005%
Beryllium	YES	8	/	71	1.30E-02		1.00E-06	[0]	4.2E-01	3.9E-01	NA	8.1E-01	0.7%
Boron	YES	34	/	34	1.61E+00		1.00E-06	[0]	5.1E-01	3.4E-03	NA	5.2E-01	0.4%
Cadmium	YES	6	/	93	1.22E-03		1.00E-06	[0]	1.6E-01	4.1E-02	NA	2.0E-01	0.2%
Chloride	YES	95	/	95	1.88E+03		1.00E-06	[0]	NA	NA	NA	NA	–
Chromium	YES	44	/	94	2.13E+00		2.00E-06	[0]	NA	NA	NA	NA	–
Chromium (Hexavalent)	YES	6	/	22	1.35E-01		2.00E-06	[0]	2.9E+00	3.8E-02	NA	2.9E+00	2%
Cobalt	YES	4	/	71	2.87E-01	m	4.00E-07	[0]	6.1E+01	1.6E-01	NA	6.1E+01	52%
Copper	YES	37	/	86	4.06E-02		1.00E-06	[0]	6.5E-02	4.3E-04	NA	6.5E-02	0.05%
Fluoride	YES	73	/	95	3.89E+00		1.00E-06	[0]	4.1E+00	2.7E-02	NA	4.2E+00	3.5%

Table E.20-HHRA-10
Risk and Hazard Calculations for the Hypothetical Future Child Resident Receptor from Exposure to Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	COPC?	FOD	EPCgw (mg/L)		DA [a] (L/cm²/day)		NON-CANCER HAZARD Route-Specific Hazard Oral	Dermal	Inhalation	Calculated Hazard	Percent Total HI
Iron	YES	19 / 34	1.34E+01		1.00E-06	[0]	1.2E+00	8.1E-03	NA	1.2E+00	1.0%
Lead	YES	1 / 93	1.30E-02	m	1.00E-07	[0]	NA	NA	NA	NA	–
Lithium	YES	11 / 12	6.55E-01		1.00E-06	[0]	2.1E+01	1.4E-01	NA	2.1E+01	18%
Manganese	YES	8 / 34	5.95E-02		1.00E-06	[0]	1.6E-01	2.6E-02	NA	1.8E-01	0.2%
Molybdenum	YES	25 / 34	1.57E-01		1.00E-06	[0]	2.0E+00	1.3E-02	NA	2.0E+00	1.7%
Nickel	YES	18 / 71	1.10E-01		2.00E-07	[0]	3.5E-01	1.2E-02	NA	3.6E-01	0.3%
Nitrate	YES	55 / 55	4.57E+01		1.00E-06	[0]	1.8E+00	1.2E-02	NA	1.8E+00	1.5%
Selenium	YES	46 / 82	7.21E-02		1.00E-06	[0]	9.2E-01	6.1E-03	NA	9.3E-01	0.8%
Sulfate	YES	95 / 95	7.26E+03		1.00E-06	[0]	NA	NA	NA	NA	–
Strontium	YES	34 / 34	1.39E+01		1.00E-06	[0]	1.5E+00	9.7E-03	NA	1.5E+00	1.2%
Tin	YES	5 / 71	4.52E-02		1.00E-06	[0]	4.8E-03	3.2E-05	NA	4.8E-03	0.004%
Vanadium	YES	62 / 71	5.01E-02		1.00E-06	[0]	6.4E-01	1.6E-01	NA	8.0E-01	0.7%
Zinc	YES	32 / 94	3.33E-02		6.00E-07	[0]	7.1E-03	2.8E-05	NA	7.1E-03	0.006%
							Total HI **			119	100%

** HI Segregated by Target Site/Critical Effect:						
HI (liver, kidney) =	3	HI (fetus, developmental) =	0.6	HI (cardiovascular) =	NA
HI (CNS, whole body) =	12	HI (forestomach, intestine) =	2	HI (skin, vascular) =	68
HI (blood, RBCs) =	10	HI (nasal, lung) =	NA	HI (NA, NR) =	24

[a] The dermal absorption factor was calculated using Equation [0], [1], or [2], as indicated, from Table E.2-19.

—	Not applicable.	NA	Not available.
HQ	Hazard quotient.	NC	Not evaluated as a carcinogen.
EPCgw	Exposure point concentration in groundwater.	K	Andelman volatilization factor (L/m^3)
HI	Hazard index (sum of the HQs).	mg/L	Milligrams per liter.
$L/cm^2/day$	Liters per square centimeter per day.	pCi/L	Picocuries per liter.
FOC	Frequency of detection.		

Equations:
HQo = (EPCgw × 1 × 350 × 6) / (15 × 2,190 × RfDo)
HQd = (EPCgw × DA × 6,600 × 350 × 6) / (15 × 2,190 × RfDa)
HQi = (EPCgw × K × 24 × 350 × 6) / (2,190 × RfC)

Table E.20-HHRA-11
Estimates of Vapor Concentrations in Indoor Air Migrating from Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Constituent	Exposure Point Concentration in Groundwater (EPCgw) [a] (mg/L)		Exposure Point Concentration in Indoor Air due to Groundwater (EPCair_gw) [b] ($\mu g/m^3$)
Volatile Organic Compounds			
Acetone	1.49E-02	m	6.51E-04
Carbon disulfide	1.07E-03	m	2.91E-02
Chloroform	1.14E-03		3.61E-03
Chloromethane	3.51E-03	m	3.44E-02
1,1-Dichloroethane	4.98E-03	m	1.94E-02
1,1-Dichloroethylene	2.54E-03		5.49E-02
Methyl tert-Butyl Ether (MTBE)	1.66E-03	m	9.13E-04
Tetrachloroethene	5.82E-03	m	6.54E-02
Trichloroethylene	4.43E-02		3.12E-01
m,p-Xylene	3.29E-03	m	1.40E-02

References:

USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (OSWER). Washington, D.C. November.
USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response. June.
USEPA. 2004b. Spreadsheet for the Johnson and Ettinger Model - Groundwater Screen. Version 3.1. Last modified 02/2004.

Notes:
$\mu g/m^3$ Micrograms per cubic meter.
mg/L Milligrams per liter.
m Maximum.

[a] EPCs are presented in table Table E.20-10.
[b] Concentrations of vapors in indoor air were estimated using USEPA's Spreadsheet for the Johnson and Ettinger Vapor Intrusion Model (USEPA, 2004b), as directed by the User's Guide (USEPA, 2003e), consistent with methods in the vapor intrusion guidance (USEPA, 2002).

Table E.20-HHRA-12
Risk and Hazard Calculations for Hypothetical Current/Future Commercial/Industrial Worker Receptor from Exposure to Vapor Concentrations in Indoor Air Migrating from Groundwater
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Current/Future
Receptor Population: Commercial/Industrial Worker
Receptor Age: Adult

Constituent	EPCair [a] ($\mu g/m^3$)	CANCER RISK URF $(mg/m^3)^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
			ELCRi			HQi	
Volatile Organic Compounds							
Acetone	6.51E-04	NA	NA	–	3.10E+01	4E-09	0.002%
Carbon disulfide	2.91E-02	NA	NA	–	7.00E-01	9E-06	4%
Chloroform	3.61E-03	2.30E-02	6.1E-09	7%	9.80E-02	8E-06	4%
Chloromethane	3.44E-02	NA	NA	–	9.00E-02	8E-05	38%
1,1-Dichloroethane	1.94E-02	1.60E-03	2.3E-09	3%	NA	NA	–
1,1-Dichloroethylene	5.49E-02	NA	NA	–	2.00E-01	6E-05	28%
Methyl tert-Butyl Ether (MTBE)	9.13E-04	2.60E-04	1.7E-11	0.02%	3.00E+00	6E-08	0.03%
Tetrachloroethene	6.54E-02	5.90E-03	2.8E-08	34%	2.70E-01	5E-05	24%
Trichloroethylene	3.12E-01	2.00E-03	4.6E-08	56%	NA	NA	–
m,p-Xylene	1.40E-02	NA	NA	–	7.00E-01	4E-06	2%
		Total ELCR	8.E-08	100%	Total HI	0.0002	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.0001	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.7	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	0.00002

[a] From Table E.16-HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Inhalation cancer unit risk factor.	mg/kg/day	Milligrams per kilogram per day.
ELCR	Excess lifetime cancer risk.	mg/m^3	Milligrams per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	NC	Not evaluated as a carcinogen.
HQ	Hazard quotient for non-cancer effects.	RfC	Inhalation noncancer reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25 × URF) / (25,550)

HQi = (EPCair × 0.001 x 8 × 0.042 × 225 × 25) / (9,125 × RfC)

Table E.20-HHRA-13
Risk and Hazard Calculations for Hypothetical Future Resident Receptor (Adult and Child) from Exposure to Vapor Concentrations in Indoor Air Migrating from Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult and Child

Constituent	EPCair [a] (µg/m^3)	CANCER RISK URF (mg/m^3)$^{-1}$	CANCER RISK Calculated Risk	Percent Total ELCR	NON-CANCER HAZARD RfC (mg/m^3)	NON-CANCER HAZARD Calculated Hazard	Percent Total HI
			ELCRi			HQi	
Volatile Organic Compounds							
Acetone	6.51E-04	NA	NA	–	3.10E+01	2E-08	0.002%
Carbon disulfide	2.91E-02	NA	NA	–	7.00E-01	4E-05	4%
Chloroform	3.61E-03	2.30E-02	3.4E-08	7%	9.80E-02	4E-05	4%
Chloromethane	3.44E-02	NA	NA	–	9.00E-02	4E-04	38%
1,1-Dichloroethane	1.94E-02	1.60E-03	1.3E-08	3%	NA	NA	–
1,1-Dichloroethylene	5.49E-02	NA	NA	–	2.00E-01	3E-04	28%
Methyl tert-Butyl Ether (MTBE)	9.13E-04	2.60E-04	9.8E-11	0.02%	3.00E+00	3E-07	0.03%
Tetrachloroethene	6.54E-02	5.90E-03	1.6E-07	34%	2.70E-01	2E-04	24%
Trichloroethylene	3.12E-01	2.00E-03	2.6E-07	56%	NA	NA	–
m,p-Xylene	1.40E-02	NA	NA	–	7.00E-01	2E-05	2%
		Total ELCR	5.E-07	100%	Total HI	0.001	100%

** HI Segregated by Target Site/Critical Effect:	HI (liver, kidney) =	0.0003	HI (gastrointestinal tract) =	NA
CNS - Central nervous system	HI (CNS, whole body, immune system) =	0.001	HI (nasal, lung) =	NA
NA - Not available	HI (blood) =	NA	HI (eyes, nails, hair, skin) =	NA
NR - None reported	HI (fetus, developmental) =	NA	HI (NA, NR) =	0.00000002

[a] From Table E.16-HHRA-11.

—	Not applicable.	m	EPC based on maximum.
URF	Inhalation cancer unit risk factor.	mg/kg/day	Milligrams per kilogram per day.
ELCR	Excess lifetime cancer risk.	mg/m³	Milligrams per cubic meter.
EPCair	Calculated exposure point concentration in indoor air.	NA	Not available.
HI	Hazard index (sum of the HQs).	NC	Not evaluated as a carcinogen.
HQ	Hazard quotient for non-cancer effects.	RfC	Inhalation noncancer reference concentration.

Equations:

ELCRi = (EPCair × 0.001 x 24 × 0.042 × 350 × 30 × URF) / (25,550)

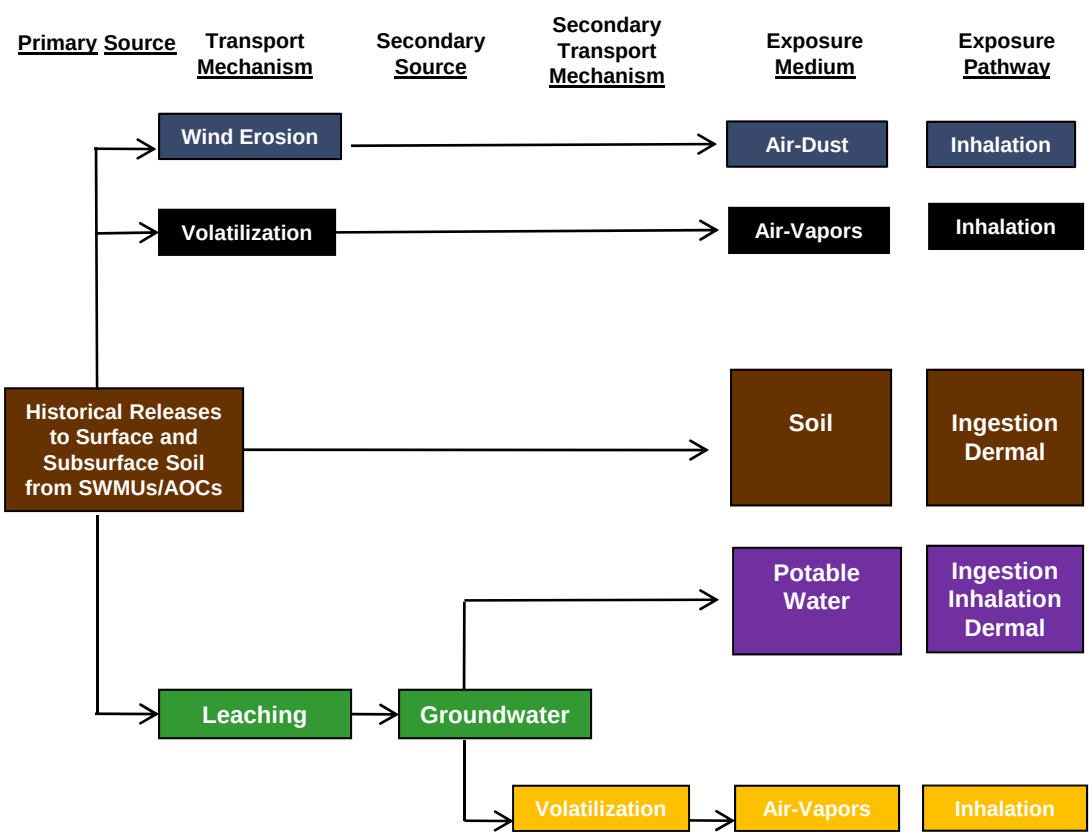
HQi = (EPCair × 0.001 x 24 × 0.042 × 350 × 6) / (2,190 × RfC)

Table E.20-HHRA-14
Summary of Calculated Human Health Risks and Hazards
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range

Excess Lifetime Cancer Risk and Total non-cancer Hazard Index [a, b]

RECEPTOR Exposure Medium - Scenario	Total Excess Lifetime Cancer Risk	Total Non-Cancer Hazard
Hypothetical Current/Future Commercial/Industrial Worker		
Use of Groundwater as a domestic water supply	**3E-04**	**20**
Vapor Migration to Indoor Air	8E-08	0.0002
TOTAL SITE RISKS:	**3E-04**	**2E+01**
Hypothetical Current/Future Resident Receptor (Adult and Child)		
Use of Groundwater as a domestic water supply	**2E-03**	**119**
Vapor Migration to Indoor Air	5E-07	0.001
TOTAL SITE RISKS:	**2E-03**	**1E+02**

[a] Cancer risk estimates exceeding $1x10^{-6}$ and non-cancer hazard estimates exceeding one are in bold.
[b] For HIs exceeding 1, target organ HIs were calculated.



Notes:
"*X*" indicates that the exposure is considered complete or potentially completed.
"*X*[a]" indicates that the exposure pathway is considered complete if site conditions allow (i.e., if volatile organic compounds are present in groundwater beneath a building).

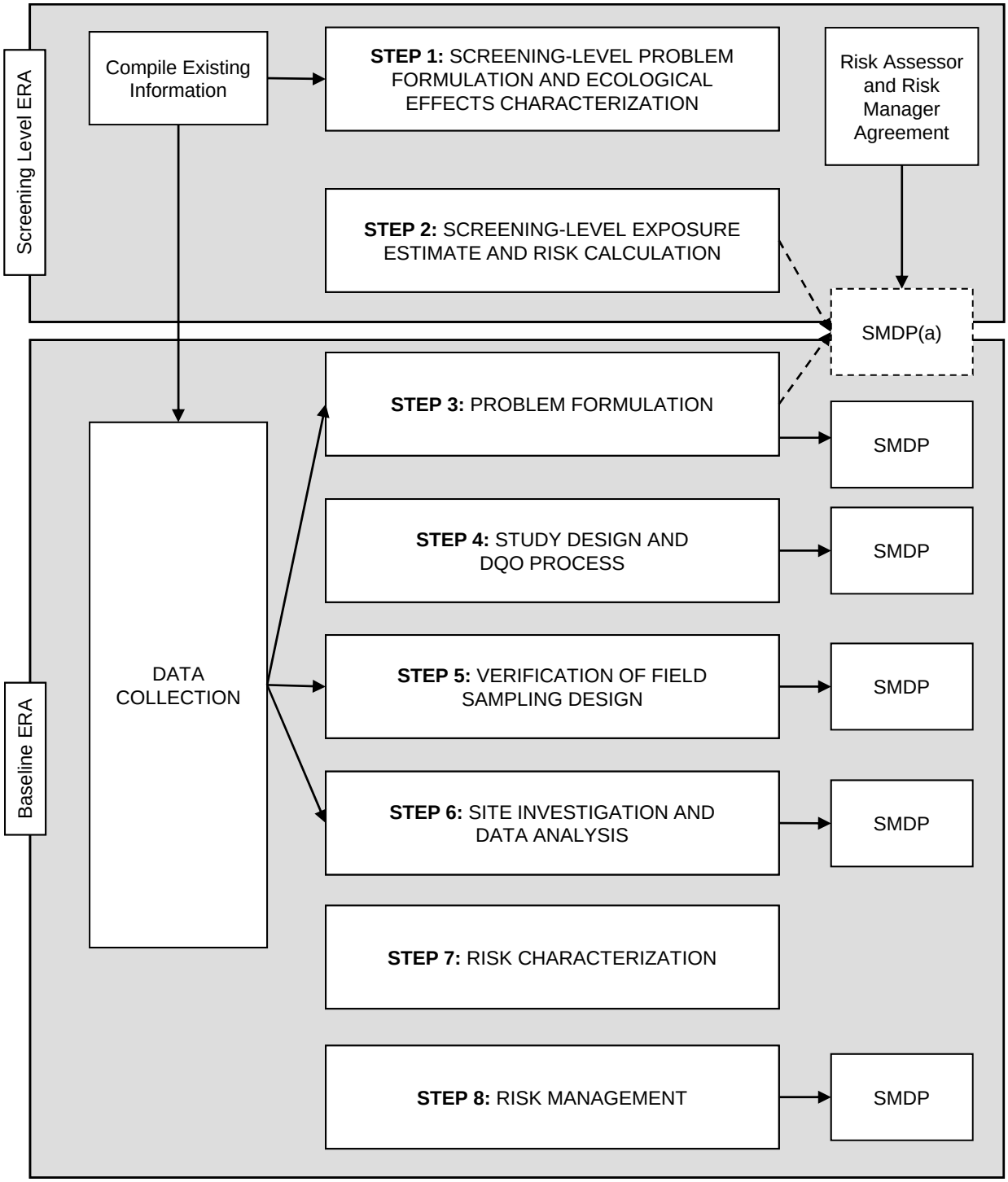
U.S. Army
White Sands Missile Range, New Mexico

CONCEPTUAL SITE MODEL FOR POTENTIAL HUMAN HEALTH RECEPTORS

ARCADIS

FIGURE
2-1

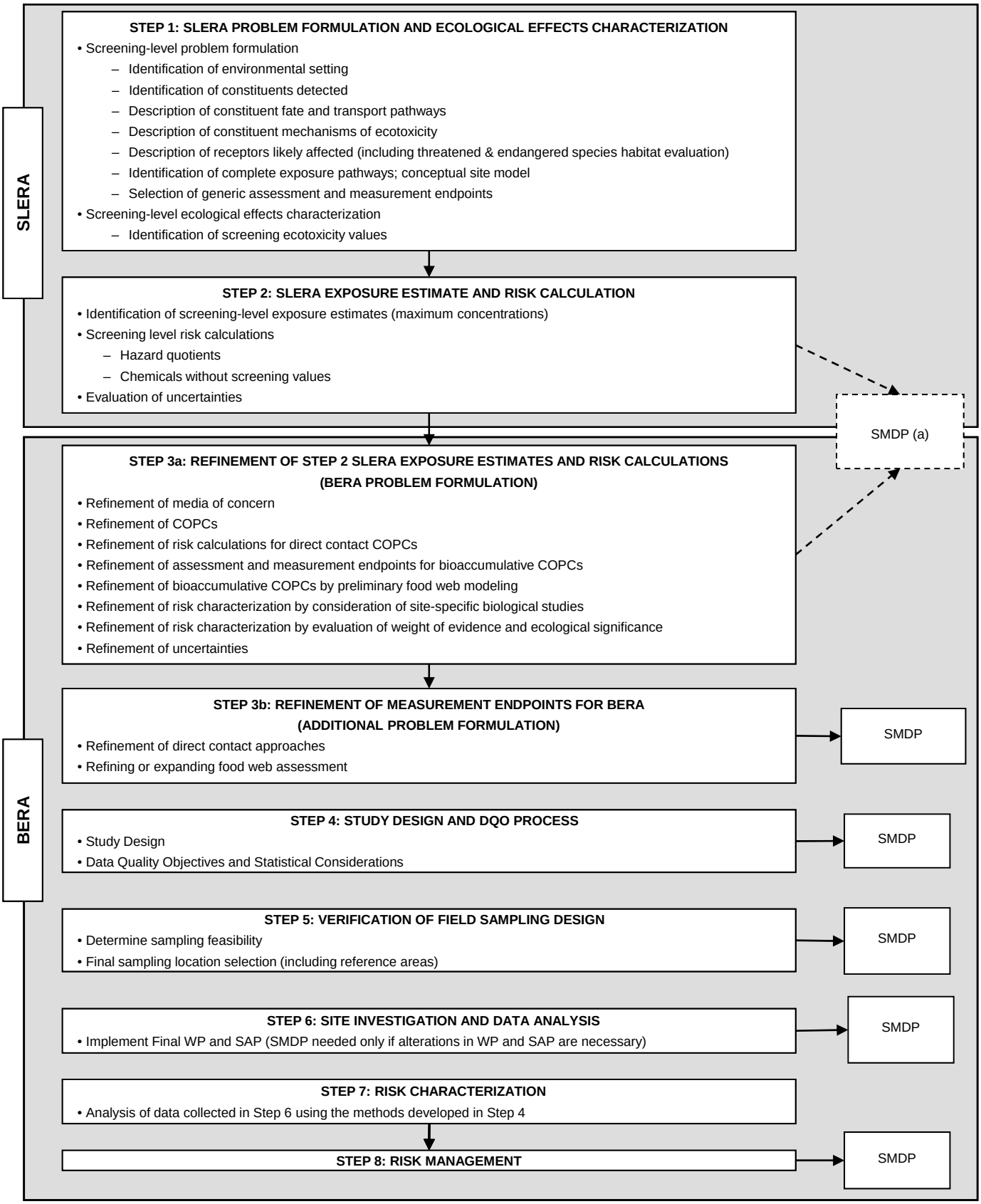
Figure 2-2
Eight-Step Ecological Risk Assessment Process



Notes:

(a) SMDP occurs EITHER after Step 2 or after Step 3a
ERA Ecological Risk Assessment
SMDP Scientific Management Decision Point
Source Adapted from USEPA, 2000b.

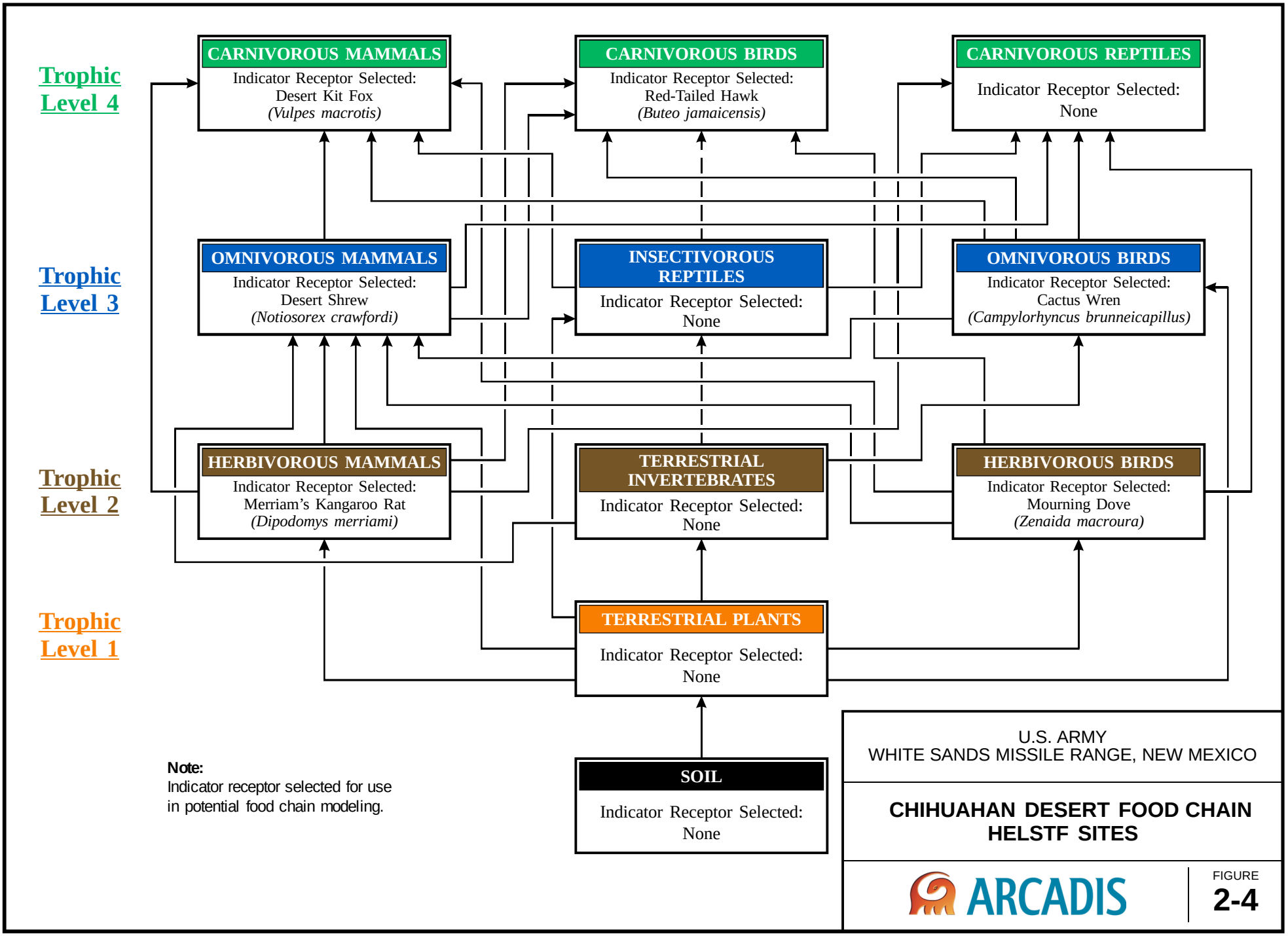
Figure 2-3
Expanded Eight-Step Ecological Risk Assessment Process



Notes:

(a)	SMDP occurs EITHER after Step 2 or after Step 3a	(Section)	Section number in parentheses corresponds with text of the Work Plan
COPCs	Constituents of Potential Concern	SMDP	Scientific Management Decision Point
DQO	Data Quality Objectives	SW/SD	Surface water and sediment
GW	Groundwater	WP	Work Plan
SAP	Sampling and Analysis Plan	BERA	Baseline ERA
Source: Adapted from USEPA, 1997c and 2000b		SLERA	Screening-level ERA

02/02/09 SYRACUSE, NY-ENV/CAD-DJH
GP08WSMR/00SW/DA001/CDR/8WSMRF01.CDR



U.S. ARMY
WHITE SANDS MISSILE RANGE, NEW MEXICO

CHIHUAHAN DESERT FOOD CHAIN
HELSTF SITES

ARCADIS

FIGURE
2-4

ARCADIS

Attachment A

Photographic Log

Photograph 1
SWMU 25
HELSTF Waste
Accumulation Area, facing
south towards Building
26132.

Photograph 2
SWMU 25
HELSTF Waste
Accumulation Area, facing
south towards Building
26132.

Photograph 3
SWMU 27
HELSTF Effluent Settling Ponds, facing south.
Northwest of SWMU 29.

Photograph 4
SWMU 27
HELSTF Effluent Settling Ponds, facing south.

Photograph 5
SWMU 27
HELSTF Effluent Settling Ponds, facing south.

Photograph 6
SWMUs 31, 32
HELSTF Chemical Waste Tank, facing south.

Photograph 7
SWMUs 31, 32
HELSTF Chemical Waste Tank, facing south.

Photograph 8
SWMUs 33, 34
HELSTF Fluorspar Tanks, facing south/southeast.

Photograph 9
SWMU 38
HELSTF Former
Construction Landfill, facing
northwest.

Photograph 10
SWMU 38
HELSTF Former
Construction Landfill, facing
northwest.

Photograph 11
SWMU 38
HELSTF Former
Construction Landfill,
facing west toward
SWMU 144.

Photograph 12
SWMU 141
HELSTF Equipment Storage
facing southeast.

Photograph 13
SWMU 143
HELSTF Chromate Spill Site, facing south.

Photograph 14
SWMUs 143, 148
HELSTF Chromate Spill Site and Former MAR Waste Pond, facing south.

Photograph 15
SWMU 144
HELSTF LSTC Wastewater
Discharge, facing north.

Photograph 16
SWMU 144
HELSTF LSTC Wastewater
Discharge, facing east.

Photograph 17
SWMU 145
HELSTF Former Test Cell 4
Lagoon (now asphalt pad),
facing southeast.

Photograph 18
SWMU 145
HELSTF Former Test Cell 4
Lagoon (now asphalt pad),
facing southeast.

Photograph 19
SWMU 146
HELSTF STP Dry Pond,
facing northeast.

Photograph 20
SWMU 146
HELSTF STP Dry Pond,
facing north.

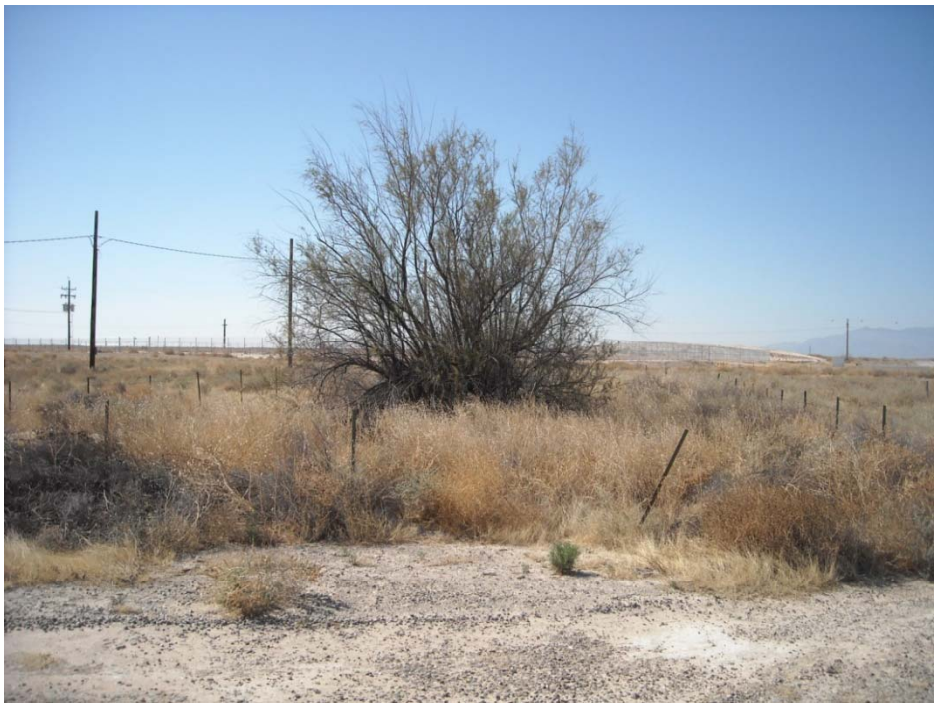
Photograph 21
SWMU 147
HELSTF Decon Pond and AST, facing west.

Photograph 22
SWMU 147
HELSTF Decon Pond and AST, facing north.

Photograph 23
SWMU 149
HELSTF Septic Tank, facing northeast.

Photograph 24
SWMU 150
HELSTF MAR Dump Site, facing northeast.

Photograph 25
SWMU 150
HELSTF MAR Dump Site,
facing east.



Photograph 26
SWMU 151
HELSTF Septic System,
facing west.

Photograph 27
SWMU 152
HELSTF Septic System,
facing southwest.

Photograph 28
SWMU 154
HELSTF Systemic Diesel
Spill, facing west.

Photograph 29
SWMU 154
HELSTF Systemic Diesel Spill, facing northwest towards Building 26132.

ARCADIS

Attachment B

Ecological Characterization Worksheets

I. SITE DESCRIPTION

Site Name: SWMU 143, 148, 141,

Site Location: HELSTF WSMR

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no)

Agricultural Use | Mining | Natural Events

Heavy Equipment | Erosion

Other: pavement ground cover

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes | no)

What type of facility is located at the site?

active facility (HELSTF)

What are the suspected contaminants at the site?

Chromate @ 143

Potential routes of off-site migration of contaminants

Swales | Drainage ditches | Runoff | Other:

Depressions | Windblown particulates | Traffic

Where does surface runoff discharge? unknown

Surface water | Groundwater | Sewer

Collection impoundment | Other

Navigable water body present or near site? (yes | no)

Evidence of flooding? None

Buttressing | Water marks | Debris line | Mud cracks

Indications of Human Disturbance:

pavement ground cover

Notes:

Area is Completely fenced

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 0%.

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 0%.

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Approximate Height: 0-2 ft. 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IIC. OPEN FIELD

What percentage of the site is an open field?

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

various, very sparce grasses along fenceline

Approximate Height: 0-0.5 ft. 0.5-2 ft. > 2 ft.

Density of vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats:

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name HELSTF SWMU 145

Site Location WSMR

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no) Other:

Agricultural Use Mining Natural Events

Heavy Equipment Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes) no

What type of facility is located at the site?

Active facility (HELSTF)

What are the suspected contaminants at the site?

unknown

Potential routes of off-site migration of contaminants

Swales Drainage ditches Runoff Other:

Depressions Windblown particulates Traffic

Where does surface runoff discharge? unk

Surface water Groundwater Sewer

Collection impoundment Other

Navigable water body present or near site? (yes) no

Evidence of flooding? None

Buttressing Water marks Debris line Mud cracks

Indications of Human Disturbance:

Ground cover is pavement

Notes:

Vegetation occurs only along fence

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 0%.

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 0%.

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Approximate Height: 0-2 ft. 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IIC. OPEN FIELD

What percentage of the site is an open field?

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

unidentified grass along fence

Approximate Height: 0-0.5 ft. 0.5-2 ft. > 2 ft.

Density of vegetation? Dense Patchy Sparse

Animals present:

unidentified song birds along fence (finch?)

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats:

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name: SWMUs 27-32, 33, 34

Site Location: HELSTF, WSMR

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no)

Other:

Agricultural Use | Mining | Natural Events

Heavy Equipment | Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes no)

What type of facility is located at the site?

~~unknown~~ discontinued lagoons

What are the suspected contaminants at the site?

unknown

Potential routes of off-site migration of contaminants

Swales | Drainage ditches | Runoff | Other: none, lagoons contained

Depressions | Windblown particulates | Traffic

Where does surface runoff discharge?

Surface water | Groundwater | Sewer

Collection impoundment | lagoon | Other

Navigable water body present or near site? (yes no)

Evidence of flooding? None

Buttressing | Water marks | Debris line | Mud cracks @ 27-30

Indications of Human Disturbance:

active & inactive lagoon

Notes:

Sparce vegetation surrounding lagoons. Entire area is fenced.

SWMUs 31 & 32 are vegetated w/ 4-winged saltbush

SWMUs 27-30 are not vegetated. Lagoons are barren w/ sparce vegetation along perimeter.

SWMUs 33 & 34: lagoons are empty but remain functional.

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 1%

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): salt cedar

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 15%

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):
4 winged salt bush; sand dropseed;
small salt cedar; sumus 31 & 32 - 50% veg w/ saltbush & sand dropseed.

Approximate Height: 0-2 ft. (2-5 ft.) > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present:
song birds @ sumu 31 & 32

Time spent identifying flora/fauna:

IIC. OPEN FIELD

What percentage of the site is an open field? 50%

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):
sand dropseed grass

Approximate Height: 0-0.5 ft. (0.5-2 ft.) > 2 ft.

Density of vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats:

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name: SWMU 38, 39, 144, 150

Site Location: HELSTF (WSMR)

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no)

Agricultural Use | Mining | Natural Events | Other: landfill construction debris

Heavy Equipment | Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes no)

What type of facility is located at the site?

Active facility (HELSTF)

What are the suspected contaminants at the site?

Chrome

Potential routes of off-site migration of contaminants

Swales | Drainage ditches | Runoff | Other: from landfill

Depressions | Windblown particulates | Traffic

Where does surface runoff discharge?

Surface water | Infiltrate Groundwater | Sewer

Collection impoundment | Other

Navigable water body present or near site? (yes no)

Evidence of flooding? None

Buttressing | Water marks | Debris line | Mud cracks

Indications of Human Disturbance:

landfill

Notes:

landfills are vegetated (shrub/scrub);
sandy soil;
depressional area @ SWMU 144 (saltcedar);
Area is gated.

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 1 %

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): salt cedar @ 144

Dominant Tree Size DBH: (0-6 in.) 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 40%

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen (Deciduous) Mixed)

Dominant Plant(s): twing saltbush, mormon tea, sand dropseed

Approximate Height: (0-2 ft.) 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? (Dense) Patchy Sparse

Animals present: unidentified birds, doves @ 144, rabbit @ salt cedar (144)

Time spent identifying flora/fauna:

IIC. OPEN FIELD

What percentage of the site is an open field? 60%

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): sand dropseed grass

Approximate Height: 0-0.5 ft. (0.5-2 ft.) > 2 ft.

Density of vegetation? (Dense) Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats:

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name: SWMU 147, 26, 142, 25, 154, 23 & 24

Site Location: HELSTF WSMR

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no)

Agricultural Use | Mining | Natural Events | Other:

Heavy Equipment | Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes no)

What type of facility is located at the site?

active facility (HELSTF)

What are the suspected contaminants at the site?

unknown

Potential routes of off-site migration of contaminants

Swales | Drainage ditches | Runoff | Other:

Depressions | Windblown particulates | Traffic

Where does surface runoff discharge?

Surface water | Groundwater | Sewer

Collection impoundment | Other

Navigable water body present or near site? (yes no)

Evidence of flooding? NONE

Buttressing | Water marks | Debris line | Mud cracks

Indications of Human Disturbance:

active area of HELSTF, pavement ground cover

Notes:

Area is covered by gravel, pavement and buildings;
no significant vegetative cover;
SWMU 154 gravel ground cover;
Fenced and gated within HELSTF

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 0%

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 0%

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Approximate Height: 0-2 ft. 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IIC. OPEN FIELD

What percentage of the site is an open field?

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

@ Sumu 154 - sparce sand dropseed grass
very sparce veg. surrounding buildings / slumus

Approximate Height: 0-0.5 ft. 0.5-2 ft. > 2 ft.

Density of vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats:

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name Survey 146

Site Location HELSTF, WSMR

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no)

Agricultural Use | Mining | Natural Events | Other:

Heavy Equipment | Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes no)

What type of facility is located at the site?

Discontinued pond

What are the suspected contaminants at the site?

unknown

Potential routes of off-site migration of contaminants none - pond

Swales | Drainage ditches | Runoff | Other:

Depressions | Windblown particulates | Traffic

Where does surface runoff discharge?

Surface water | Groundwater | Sewer

Collection impoundment | Other

Navigable water body present or near site? (yes no)

Evidence of flooding? None

Buttressing | Water marks | Debris line | Mud cracks

Indications of Human Disturbance:

Notes: Dry pond (depression) with salt cedar growing within.

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 15-20%

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): Salt Cedar

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB 30%

What percentage of the site is covered in shrub/scrub?

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): salt bush (H-wing)
Dropseed grass, mormon tea

Approximate Height: 0-2 ft. 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present: Rabbit, insects

Time spent identifying flora/fauna: 5 min.

IIC. OPEN FIELD

What percentage of the site is an open field?

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): Dropseed grass

Approximate Height: 0-0.5 ft. 0.5-2 ft. > 2 ft.

Density of vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats: 50% open, sandy soil (barren)

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name HELSTF SWMU 149, 37

Site Location WSMR

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no) Other:

Agricultural Use Mining Natural Events

Heavy Equipment Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes no)

What type of facility is located at the site?

Active HELSTF facility

What are the suspected contaminants at the site?

unknown

Potential routes of off-site migration of contaminants

Swales Drainage ditches Runoff Other:

Depressions Windblown particulates Traffic

Where does surface runoff discharge?

Surface water Groundwater Sewer

Collection impoundment Other

Navigable water body present or near site? (yes no)

Evidence of flooding? None

Buttressing Water marks Debris line Mud cracks

Indications of Human Disturbance:

fenced area

Notes:

- Herbaceous vegetation within SWMU 149.
- Sparce grass (maintained) surrounding building @ SWMU 37, Patchy around perimeter - NO significant habitat

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 0

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 0

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s):

Approximate Height: 0-2 ft. 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IIC. OPEN FIELD

What percentage of the site is ~~an open field~~ grass? 10% @ 37 100% @ 149

Prairie/plains (Old field) Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): • various grass present around perimeter of building - no significant habitat @ 37
• various grass @ 149

Approximate Height: 0-0.5 ft. 0.5-2 ft. > 2 ft.

Density of vegetation? (Dense) Patchy (Sparse) @ 37
@ 149

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats:

Flora:

Fauna:

Time spent identifying flora/fauna:

I. SITE DESCRIPTION

Site Name HELSTF SWMU 151, 152.

Site Location WSMR.

The land use on the site is:		The land around the site is	
Urban	Agricultural	Urban	Agricultural
Rural	Recreational	Rural	Recreational
Residential	Undisturbed	Residential	Undisturbed
Industrial (light heavy)		Industrial (light heavy)	

Any movement of soil at site? (yes no) debris

Other:

Agricultural Use | Mining | Natural Events

Heavy Equipment | Erosion

Potentially sensitive environmental areas exist adjacent to or in proximity to the site? (yes no)

What type of facility is located at the site?

Active HELSTF facility

What are the suspected contaminants at the site?

unknown

Potential routes of off-site migration of contaminants

Swales | Drainage ditches | Runoff | Other:

Depressions | Windblown particulates | Traffic

Where does surface runoff discharge?

Surface water | Groundwater | Sewer

Collection impoundment | Other

Navigable water body present or near site? (yes no)

Evidence of flooding? None.

Buttressing | Water marks | Debris line | Mud cracks

Indications of Human Disturbance:

Soil movement, debris

Notes:

- Barb wire fence surrounding both areas
- septic tank fields

II. TERRESTRIAL HABITAT CHECKLIST

IIA. WOODED

What percentage of the site is wooded? 1%

What is the dominant type of vegetation in the wooded area? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): Salt cedar in swmk. 151 corner

Dominant Tree Size DBH: 0-6 in. 6-12 in. > 12 in

Type of Understory PHOTOGRAPH:

Animals present:

Time spent identifying flora/fauna:

IIB. SHRUB/SCRUB

What percentage of the site is covered in shrub/scrub? 80%

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): twing saltbush
russian thistle

Approximate Height: 0-2 ft. 2-5 ft. > 5 ft.

Density of scrub/shrub vegetation? Dense Patchy Sparse

Animals present: Rabbit

Time spent identifying flora/fauna: 5 min.

IIC. OPEN FIELD

What percentage of the site is an open field? 15%

Prairie/plains Old field Savannah Other:

What is the dominant type of vegetation? PHOTOGRAPH (Evergreen Deciduous Mixed)

Dominant Plant(s): Dropseed grass

Approximate Height: 0-0.5 ft. 0.5-2 ft. > 2 ft.

Density of vegetation? Dense Patchy Sparse

Animals present:

Time spent identifying flora/fauna:

IID. MISCELLANEOUS

Other Terrestrial Habitats: open area (gravel) ~5%

Flora:

Fauna:

Time spent identifying flora/fauna:

ARCADIS

Attachment C

ProUCL Version 4.0 Output

Attachment C – ProUCL Output for SWMU 27

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (acetone)

General Statistics

Number of Valid Data	40	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	34
		Percent Non-Detects	85.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0052	Minimum Detected	-5.259
Maximum Detected	0.4	Maximum Detected	-0.916
Mean of Detected	0.113	Mean of Detected	-3.047
SD of Detected	0.15	SD of Detected	1.582
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.017	Maximum Non-Detect	-4.075

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	4
Single DL Non-Detect Percentage	90.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.774
5% Shapiro Wilk Critical Value	0.788

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.991
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0201
SD	0.0667
95% DL/2 (t) UCL	0.0378
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.247
SD	1.11
95% H-Stat (DL/2) UCL	0.0129
Log ROS Method	
Mean in Log Scale	-7.37
SD in Log Scale	2.318
Mean in Original Scale	0.0175
SD in Original Scale	0.0674
95% Percentile Bootstrap UCL	0.0373
95% BCA Bootstrap UCL	0.0484

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.46
Theta Star	0.246
nu star	5.518
A-D Test Statistic	0.193
5% A-D Critical Value	0.724
K-S Test Statistic	0.724
5% K-S Critical Value	0.345

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0052
Maximum	0.4
Mean	0.111
Median	0.116
SD	0.0623
k star	2.604
Theta star	0.0425
Nu star	208.4
AppChi2	175.9
95% Gamma Approximate UCL	0.131
95% Adjusted Gamma UCL	0.132

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0214
SD	0.0656
SE of Mean	0.0114
95% KM (t) UCL	0.0405
95% KM (z) UCL	0.0401
95% KM (jackknife) UCL	0.036
95% KM (bootstrap t) UCL	0.0724
95% KM (BCA) UCL	0.0951
95% KM (Percentile Bootstrap) UCL	0.0671
95% KM (Chebyshev) UCL	0.0709
97.5% KM (Chebyshev) UCL	0.0923
99% KM (Chebyshev) UCL	0.134

Potential UCLs to Use

95% KM (t) UCL	0.0405

Result (barium)

General Statistics

Number of Valid Observations	50	Number of Distinct Observations	48

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.54	Minimum of Log Data	1.712
Maximum	110	Maximum of Log Data	4.7
Mean	44.92	Mean of log Data	3.642
Median	41.7	SD of log Data	0.628
SD	23.59		
Coefficient of Variation	0.525		
Skewness	0.659		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.96	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	50.51	95% H-UCL	55.46
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	65.55
95% Adjusted-CLT UCL	50.74	97.5% Chebyshev (MVUE) UCL	73.89
95% Modified-t UCL	50.56	99% Chebyshev (MVUE) UCL	90.28

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.047	**Data appear Normal at 5% Significance Level**
Theta Star	14.74	
nu star	304.7	
Approximate Chi Square Value (.05)	265.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0452	95% CLT UCL 50.41
Adjusted Chi Square Value	264.1	95% Jackknife UCL 50.51
		95% Standard Bootstrap UCL 50.24
Anderson-Darling Test Statistic	0.285	95% Bootstrap-t UCL 50.88
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL 51.05
Kolmogorov-Smirnov Test Statistic	0.0781	95% Percentile Bootstrap UCL 50.44
Kolmogorov-Smirnov 5% Critical Value	0.126	95% BCA Bootstrap UCL 50.91
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 59.46
		97.5% Chebyshev(Mean, Sd) UCL 65.75
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 78.11
95% Approximate Gamma UCL	51.6	
95% Adjusted Gamma UCL	51.81	

Potential UCL to Use		Use 95% Student's-t UCL	50.51

Result (cadmium)

General Statistics

Number of Valid Data	50	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	44
		Percent Non-Detects	88.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0809	Minimum Detected	-2.515
Maximum Detected	2.08	Maximum Detected	0.732
Mean of Detected	0.674	Mean of Detected	-1.072
SD of Detected	0.821	SD of Detected	1.28
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1.36	Maximum Non-Detect	0.307

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	49
Number treated as Detected	1
Single DL Non-Detect Percentage	98.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.766	Shapiro Wilk Test Statistic	0.903
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.221	Mean	-1.825
SD	0.325	SD	0.604
95% DL/2 (t) UCL	0.298	95% H-Stat (DL/2) UCL	0.214
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.121
		SD in Log Scale	0.683
		Mean in Original Scale	0.179
		SD in Original Scale	0.323
		95% Percentile Bootstrap UCL	0.258
		95% BCA Bootstrap UCL	0.302

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.545	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.237	
nu star	6.536	
A-D Test Statistic	0.535	
5% A-D Critical Value	0.718	
K-S Test Statistic	0.718	
5% K-S Critical Value	0.342	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0809
Maximum	2.08
Mean	0.717
Median	0.722
SD	0.266
k star	5.826
Theta star	0.123
Nu star	582.6
AppChi2	527.6
95% Gamma Approximate UCL	0.791
95% Adjusted Gamma UCL	0.794

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.192
SD	0.319
SE of Mean	0.0539
95% KM (t) UCL	0.283
95% KM (z) UCL	0.281
95% KM (jackknife) UCL	0.288
95% KM (bootstrap t) UCL	0.344
95% KM (BCA) UCL	0.34
95% KM (Percentile Bootstrap) UCL	0.318
95% KM (Chebyshev) UCL	0.427
97.5% KM (Chebyshev) UCL	0.529
99% KM (Chebyshev) UCL	0.729
Potential UCLs to Use	
95% KM (t) UCL	0.283

Result (carbon disulfide)

General Statistics

Number of Valid Data	40	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	30
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0018	Minimum Detected	-6.32
Maximum Detected	0.037	Maximum Detected	-3.297
Mean of Detected	0.0083	Mean of Detected	-5.254
SD of Detected	0.0108	SD of Detected	0.904
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0067	Maximum Non-Detect	-5.006

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	37
Number treated as Detected	3
Single DL Non-Detect Percentage	92.50%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.617
5% Shapiro Wilk Critical Value	0.842

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00319
SD	0.00598
95% DL/2 (t) UCL	0.00479
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.895
5% Shapiro Wilk Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.214
SD	0.733
95% H-Stat (DL/2) UCL	0.003
Log ROS Method	
Mean in Log Scale	-6.402
SD in Log Scale	0.925
Mean in Original Scale	0.00304
SD in Original Scale	0.00604
95% Percentile Bootstrap UCL	0.00482
95% BCA Bootstrap UCL	0.00612

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.921
Theta Star	0.00901
nu star	18.43
A-D Test Statistic	0.897
5% A-D Critical Value	0.744
K-S Test Statistic	0.744
5% K-S Critical Value	0.273

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0018
Maximum	0.037
Mean	0.00876
Median	0.00895
SD	0.0053
k star	3.893
Theta star	0.00225
Nu star	311.4
AppChi2	271.5
95% Gamma Approximate UCL	0.01
95% Adjusted Gamma UCL	0.0101

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00354
SD	0.00581
SE of Mean	0.000973
95% KM (t) UCL	0.00518
95% KM (z) UCL	0.00514
95% KM (jackknife) UCL	0.0049
95% KM (bootstrap t) UCL	0.00972
95% KM (BCA) UCL	0.00612
95% KM (Percentile Bootstrap) UCL	0.00556
95% KM (Chebyshev) UCL	0.00778
97.5% KM (Chebyshev) UCL	0.00961
99% KM (Chebyshev) UCL	0.0132

Potential UCLs to Use

95% KM (t) UCL	0.00518
95% KM (% Bootstrap) UCL	0.00556

Result (chromium)

General Statistics

Number of Valid Observations	60	Number of Distinct Observations	58

Raw Statistics		Log-transformed Statistics	
Minimum	0.524	Minimum of Log Data	-0.646
Maximum	27.1	Maximum of Log Data	3.3
Mean	5.148	Mean of log Data	1.23
Median	3.08	SD of log Data	0.835
SD	6.074		
Coefficient of Variation	1.18		
Skewness	2.524		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.315	Lilliefors Test Statistic	0.139
Lilliefors Critical Value	0.114	Lilliefors Critical Value	0.114
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6.458	95% H-UCL	6.103
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.371
95% Adjusted-CLT UCL	6.71	97.5% Chebyshev (MVUE) UCL	8.48
95% Modified-t UCL	6.5	99% Chebyshev (MVUE) UCL	10.66

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.309	Data do not follow a Discernable Distribution (0.05)
Theta Star	3.931	
nu star	157.1	
Approximate Chi Square Value (.05)	129.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.046	95% CLT UCL 6.437
Adjusted Chi Square Value	128.5	95% Jackknife UCL 6.458
		95% Standard Bootstrap UCL 6.446
Anderson-Darling Test Statistic	3.271	95% Bootstrap-t UCL 7.048
Anderson-Darling 5% Critical Value	0.772	95% Hall's Bootstrap UCL 6.646
Kolmogorov-Smirnov Test Statistic	0.213	95% Percentile Bootstrap UCL 6.447
Kolmogorov-Smirnov 5% Critical Value	0.117	95% BCA Bootstrap UCL 6.802
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 8.565
		97.5% Chebyshev(Mean, Sd) UCL 10.04
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12.95
95% Approximate Gamma UCL	6.263	
95% Adjusted Gamma UCL	6.293	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 8.565

Result (copper)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.41	Minimum of Log Data	0.344
Maximum	330	Maximum of Log Data	5.799
Mean	43.24	Mean of log Data	2.092
Median	3.52	SD of log Data	1.79
SD	101.6		
Coefficient of Variation	2.349		
Skewness	3.07		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.464	Shapiro Wilk Test Statistic	0.85
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	102.1	95% H-UCL	743.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	105.6
95% Adjusted-CLT UCL	129.4	97.5% Chebyshev (MVUE) UCL	138.6
95% Modified-t UCL	107.3	99% Chebyshev (MVUE) UCL	203.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.342	Data appear Lognormal at 5% Significance Level
Theta Star	126.3	
nu star	6.849	
Approximate Chi Square Value (.05)	2.088	
Adjusted Level of Significance	0.0267	
Adjusted Chi Square Value	1.663	
Anderson-Darling Test Statistic	1.147	
Anderson-Darling 5% Critical Value	0.796	
Kolmogorov-Smirnov Test Statistic	0.286	
Kolmogorov-Smirnov 5% Critical Value	0.285	
Data not Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	96.07
95% Jackknife UCL	102.1
95% Standard Bootstrap UCL	93.24
95% Bootstrap-t UCL	400.8
95% Hall's Bootstrap UCL	318
95% Percentile Bootstrap UCL	105.6
95% BCA Bootstrap UCL	138.3
95% Chebyshev(Mean, Sd) UCL	183.2
97.5% Chebyshev(Mean, Sd) UCL	243.8
99% Chebyshev(Mean, Sd) UCL	362.8

Assuming Gamma Distribution	
95% Approximate Gamma UCL	141.8
95% Adjusted Gamma UCL	178.1

Potential UCL to Use	Use 99% Chebyshev (MVUE) UCL 203.3

Result (lead)

General Statistics

Number of Valid Data	50	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	43
		Percent Non-Detects	86.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.18	Minimum Detected	0.166
Maximum Detected	62.5	Maximum Detected	4.135
Mean of Detected	14.73	Mean of Detected	1.568
SD of Detected	23.48	SD of Detected	1.557
Minimum Non-Detect	1	Minimum Non-Detect	0
Maximum Non-Detect	6.82	Maximum Non-Detect	1.92

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	48
Number treated as Detected	2
Single DL Non-Detect Percentage	96.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.667
5% Shapiro Wilk Critical Value	0.803

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.76
SD	9.566
95% DL/2 (t) UCL	5.028
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.82
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-0.0354
SD	0.915
95% H-Stat (DL/2) UCL	1.588
Log ROS Method	
Mean in Log Scale	-3.034
SD in Log Scale	2.35
Mean in Original Scale	2.106
SD in Original Scale	9.694
95% Percentile Bootstrap UCL	4.563
95% BCA Bootstrap UCL	6.235

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.414
Theta Star	35.61
nu star	5.79
A-D Test Statistic	0.887
5% A-D Critical Value	0.748
K-S Test Statistic	0.748
5% K-S Critical Value	0.326

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1.18
Maximum	62.5
Mean	16.38
Median	15.75
SD	10.14
k star	2.357
Theta star	6.95
Nu star	235.7
AppChi2	201.1
95% Gamma Approximate UCL	19.19
95% Adjusted Gamma UCL	19.28

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	3.087
SD	9.393
SE of Mean	1.435
95% KM (t) UCL	5.493
95% KM (z) UCL	5.447
95% KM (jackknife) UCL	5.209
95% KM (bootstrap t) UCL	43.4
95% KM (BCA) UCL	7.035
95% KM (Percentile Bootstrap) UCL	5.789
95% KM (Chebyshev) UCL	9.341
97.5% KM (Chebyshev) UCL	12.05
99% KM (Chebyshev) UCL	17.36

Potential UCLs to Use

95% KM (Chebyshev) UCL	9.341

Result (mercury)

General Statistics

Number of Valid Data	50	Number of Detected Data	22
Number of Distinct Detected Data	22	Number of Non-Detect Data	28
		Percent Non-Detects	56.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00412	Minimum Detected	-5.492
Maximum Detected	1.44	Maximum Detected	0.365
Mean of Detected	0.118	Mean of Detected	-3.387
SD of Detected	0.301	SD of Detected	1.507
Minimum Non-Detect	0.0283	Minimum Non-Detect	-3.565
Maximum Non-Detect	0.045	Maximum Non-Detect	-3.101

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	40
Number treated as Detected	10
Single DL Non-Detect Percentage	80.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.371	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.911	5% Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0621	Mean	-3.739
SD	0.203	SD	1.038
95% DL/2 (t) UCL	0.11	95% H-Stat (DL/2) UCL	0.0688
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.005
		SD in Log Scale	1.219
		Mean in Original Scale	0.0594
		SD in Original Scale	0.204
		95% Percentile Bootstrap UCL	0.115
		95% BCA Bootstrap UCL	0.151

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.468	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	0.252	
nu star	20.59	
A-D Test Statistic	1.265	
5% A-D Critical Value	0.804	
K-S Test Statistic	0.804	
5% K-S Critical Value	0.196	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00412
Maximum	1.44
Mean	0.118
Median	0.118
SD	0.197
k star	0.994
Theta star	0.119
Nu star	99.38
AppChi2	77.38
95% Gamma Approximate UCL	0.152
95% Adjusted Gamma UCL	0.153

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0591
SD	0.202
SE of Mean	0.0293
95% KM (t) UCL	0.108
95% KM (z) UCL	0.107
95% KM (jackknife) UCL	0.108
95% KM (bootstrap t) UCL	0.265
95% KM (BCA) UCL	0.113
95% KM (Percentile Bootstrap) UCL	0.115
95% KM (Chebyshev) UCL	0.187
97.5% KM (Chebyshev) UCL	0.242
99% KM (Chebyshev) UCL	0.35

Potential UCLs to Use	
95% KM (t) UCL	0.108

Result (nickel)

General Statistics

Number of Valid Data	10	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	3
		Percent Non-Detects	30.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.67	Minimum Detected	-0.4
Maximum Detected	4.74	Maximum Detected	1.556
Mean of Detected	1.46	Mean of Detected	0.114
SD of Detected	1.47	SD of Detected	0.685
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.599	Shapiro Wilk Test Statistic	0.762
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.097	Mean	-0.336
SD	1.335	SD	0.916
95% DL/2 (t) UCL	1.87	95% H-Stat (DL/2) UCL	1.262
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.831	Mean in Log Scale	-0.377
SD	1.567	SD in Log Scale	0.985
95% MLE (t) UCL	1.739	Mean in Original Scale	1.09
95% MLE (Tiku) UCL	1.777	SD in Original Scale	1.34
		95% Percentile Bootstrap UCL	1.845
		95% BCA Bootstrap UCL	2.265

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.264	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	1.155		
nu star	17.7		
A-D Test Statistic	1.022	**Nonparametric Statistics**	
5% A-D Critical Value	0.715	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.715	Mean	1.223
5% K-S Critical Value	0.315	SD	1.194
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.408
		95% KM (t) UCL	1.971
Assuming Gamma Distribution		95% KM (z) UCL	1.894
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.942
Minimum	0.071	95% KM (bootstrap t) UCL	6.555
Maximum	4.74	95% KM (BCA) UCL	2.013
Mean	1.164	95% KM (Percentile Bootstrap) UCL	1.976
Median	0.818	95% KM (Chebyshev) UCL	3.001
SD	1.304	97.5% KM (Chebyshev) UCL	3.771
k star	0.994	99% KM (Chebyshev) UCL	5.282
Theta star	1.171		
Nu star	19.89	**Potential UCLs to Use**	
AppChi2	10.77	95% KM (Percentile Bootstrap) UCL	1.976
95% Gamma Approximate UCL	2.151		
95% Adjusted Gamma UCL	2.407		

Note: DL/2 is not a recommended method.

Result (vanadium)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.875	Minimum of Log Data	-0.134
Maximum	10.5	Maximum of Log Data	2.351
Mean	3.207	Mean of log Data	0.88
Median	2.3	SD of log Data	0.752
SD	2.96		
Coefficient of Variation	0.923		
Skewness	2.032		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.741	Shapiro Wilk Test Statistic	0.949
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.922	95% H-UCL	6.175
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.408
95% Adjusted-CLT UCL	5.389	97.5% Chebyshev (MVUE) UCL	7.843
95% Modified-t UCL	5.023	99% Chebyshev (MVUE) UCL	10.66

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.397	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.296	
nu star	27.94	
Approximate Chi Square Value (.05)	16.88	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 4.746
Adjusted Chi Square Value	15.4	95% Jackknife UCL 4.922
		95% Standard Bootstrap UCL 4.67
Anderson-Darling Test Statistic	0.511	95% Bootstrap-t UCL 8.362
Anderson-Darling 5% Critical Value	0.736	95% Hall's Bootstrap UCL 13.14
Kolmogorov-Smirnov Test Statistic	0.232	95% Percentile Bootstrap UCL 4.795
Kolmogorov-Smirnov 5% Critical Value	0.27	95% BCA Bootstrap UCL 5.449
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.287
		97.5% Chebyshev(Mean, Sd) UCL 9.053
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12.52
95% Approximate Gamma UCL	5.307	
95% Adjusted Gamma UCL	5.816	

Potential UCL to Use	Use 95% Approximate Gamma UCL 5.307

Result (zinc)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	4.98	Minimum of Log Data	1.605
Maximum	222	Maximum of Log Data	5.403
Mean	36.95	Mean of log Data	2.757
Median	8.93	SD of log Data	1.223
SD	66.43		
Coefficient of Variation	1.798		
Skewness	2.924		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.531	Shapiro Wilk Test Statistic	0.849
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	75.46	95% H-UCL	143.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	82.84
95% Adjusted-CLT UCL	92.27	97.5% Chebyshev (MVUE) UCL	105.8
95% Modified-t UCL	78.7	99% Chebyshev (MVUE) UCL	150.9

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.562	Data appear Lognormal at 5% Significance Level
Theta Star	65.72	
nu star	11.25	
Approximate Chi Square Value (.05)	4.734	
Adjusted Level of Significance	0.0267	
Adjusted Chi Square Value	4.026	
Anderson-Darling Test Statistic	1.048	
Anderson-Darling 5% Critical Value	0.76	
Kolmogorov-Smirnov Test Statistic	0.282	
Kolmogorov-Smirnov 5% Critical Value	0.277	
Data not Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	71.51
95% Jackknife UCL	75.46
95% Standard Bootstrap UCL	68.93
95% Bootstrap-t UCL	195
95% Hall's Bootstrap UCL	200.2
95% Percentile Bootstrap UCL	76.27
95% BCA Bootstrap UCL	95.48
95% Chebyshev(Mean, Sd) UCL	128.5
97.5% Chebyshev(Mean, Sd) UCL	168.2
99% Chebyshev(Mean, Sd) UCL	246

Assuming Gamma Distribution	
95% Approximate Gamma UCL	87.78
95% Adjusted Gamma UCL	103.2

Potential UCL to Use	Use 95% Chebyshev (MVUE) UCL 82.84

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (acetone)

General Statistics

Number of Valid Data	40	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	34
		Percent Non-Detects	85.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0052	Minimum Detected	-5.259
Maximum Detected	0.4	Maximum Detected	-0.916
Mean of Detected	0.113	Mean of Detected	-3.047
SD of Detected	0.15	SD of Detected	1.582
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.017	Maximum Non-Detect	-4.075

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	4
Single DL Non-Detect Percentage	90.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.774
5% Shapiro Wilk Critical Value	0.788

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.991
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0201
SD	0.0667
95% DL/2 (t) UCL	0.0378
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.247
SD	1.11
95% H-Stat (DL/2) UCL	0.0129
Log ROS Method	
Mean in Log Scale	-7.37
SD in Log Scale	2.318
Mean in Original Scale	0.0175
SD in Original Scale	0.0674
95% Percentile Bootstrap UCL	0.0373
95% BCA Bootstrap UCL	0.0484

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.46
Theta Star	0.246
nu star	5.518
A-D Test Statistic	0.193
5% A-D Critical Value	0.724
K-S Test Statistic	0.724
5% K-S Critical Value	0.345

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0052
Maximum	0.4
Mean	0.111
Median	0.116
SD	0.0623
k star	2.604
Theta star	0.0425
Nu star	208.4
AppChi2	175.9
95% Gamma Approximate UCL	0.131
95% Adjusted Gamma UCL	0.132

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0214
SD	0.0656
SE of Mean	0.0114
95% KM (t) UCL	0.0405
95% KM (z) UCL	0.0401
95% KM (jackknife) UCL	0.036
95% KM (bootstrap t) UCL	0.0724
95% KM (BCA) UCL	0.0951
95% KM (Percentile Bootstrap) UCL	0.0671
95% KM (Chebyshev) UCL	0.0709
97.5% KM (Chebyshev) UCL	0.0923
99% KM (Chebyshev) UCL	0.134

Potential UCLs to Use

95% KM (t) UCL	0.0405

Result (barium)

General Statistics

Number of Valid Observations	50	Number of Distinct Observations	48

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.54	Minimum of Log Data	1.712
Maximum	110	Maximum of Log Data	4.7
Mean	44.92	Mean of log Data	3.642
Median	41.7	SD of log Data	0.628
SD	23.59		
Coefficient of Variation	0.525		
Skewness	0.659		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.96	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	50.51	95% H-UCL	55.46
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	65.55
95% Adjusted-CLT UCL	50.74	97.5% Chebyshev (MVUE) UCL	73.89
95% Modified-t UCL	50.56	99% Chebyshev (MVUE) UCL	90.28

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.047	**Data appear Normal at 5% Significance Level**
Theta Star	14.74	
nu star	304.7	
Approximate Chi Square Value (.05)	265.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0452	95% CLT UCL 50.41
Adjusted Chi Square Value	264.1	95% Jackknife UCL 50.51
		95% Standard Bootstrap UCL 50.24
Anderson-Darling Test Statistic	0.285	95% Bootstrap-t UCL 50.88
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL 51.05
Kolmogorov-Smirnov Test Statistic	0.0781	95% Percentile Bootstrap UCL 50.44
Kolmogorov-Smirnov 5% Critical Value	0.126	95% BCA Bootstrap UCL 50.91
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 59.46
		97.5% Chebyshev(Mean, Sd) UCL 65.75
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 78.11
95% Approximate Gamma UCL	51.6	
95% Adjusted Gamma UCL	51.81	

Potential UCL to Use	Use 95% Student's-t UCL 50.51

Result (cadmium)

General Statistics

Number of Valid Data	50	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	44
		Percent Non-Detects	88.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0809	Minimum Detected	-2.515
Maximum Detected	2.08	Maximum Detected	0.732
Mean of Detected	0.674	Mean of Detected	-1.072
SD of Detected	0.821	SD of Detected	1.28
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1.36	Maximum Non-Detect	0.307

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	49
Number treated as Detected	1
Single DL Non-Detect Percentage	98.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.766	Shapiro Wilk Test Statistic	0.903
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.221	Mean	-1.825
SD	0.325	SD	0.604
95% DL/2 (t) UCL	0.298	95% H-Stat (DL/2) UCL	0.214
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.121
		SD in Log Scale	0.683
		Mean in Original Scale	0.179
		SD in Original Scale	0.323
		95% Percentile Bootstrap UCL	0.258
		95% BCA Bootstrap UCL	0.302

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.545	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.237	
nu star	6.536	
A-D Test Statistic	0.535	
5% A-D Critical Value	0.718	
K-S Test Statistic	0.718	
5% K-S Critical Value	0.342	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0809
Maximum	2.08
Mean	0.717
Median	0.722
SD	0.266
k star	5.826
Theta star	0.123
Nu star	582.6
AppChi2	527.6
95% Gamma Approximate UCL	0.791
95% Adjusted Gamma UCL	0.794

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.192
SD	0.319
SE of Mean	0.0539
95% KM (t) UCL	0.283
95% KM (z) UCL	0.281
95% KM (jackknife) UCL	0.288
95% KM (bootstrap t) UCL	0.344
95% KM (BCA) UCL	0.34
95% KM (Percentile Bootstrap) UCL	0.318
95% KM (Chebyshev) UCL	0.427
97.5% KM (Chebyshev) UCL	0.529
99% KM (Chebyshev) UCL	0.729
Potential UCLs to Use	
95% KM (t) UCL	0.283

Result (carbon disulfide)

General Statistics

Number of Valid Data	40	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	30
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0018	Minimum Detected	-6.32
Maximum Detected	0.037	Maximum Detected	-3.297
Mean of Detected	0.0083	Mean of Detected	-5.254
SD of Detected	0.0108	SD of Detected	0.904
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0067	Maximum Non-Detect	-5.006

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	37
Number treated as Detected	3
Single DL Non-Detect Percentage	92.50%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.617
5% Shapiro Wilk Critical Value	0.842

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00319
SD	0.00598
95% DL/2 (t) UCL	0.00479
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.895
5% Shapiro Wilk Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.214
SD	0.733
95% H-Stat (DL/2) UCL	0.003
Log ROS Method	
Mean in Log Scale	-6.402
SD in Log Scale	0.925
Mean in Original Scale	0.00304
SD in Original Scale	0.00604
95% Percentile Bootstrap UCL	0.00482
95% BCA Bootstrap UCL	0.00612

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.921
Theta Star	0.00901
nu star	18.43
A-D Test Statistic	0.897
5% A-D Critical Value	0.744
K-S Test Statistic	0.744
5% K-S Critical Value	0.273

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0018
Maximum	0.037
Mean	0.00876
Median	0.00895
SD	0.0053
k star	3.893
Theta star	0.00225
Nu star	311.4
AppChi2	271.5
95% Gamma Approximate UCL	0.01
95% Adjusted Gamma UCL	0.0101

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00354
SD	0.00581
SE of Mean	0.000973
95% KM (t) UCL	0.00518
95% KM (z) UCL	0.00514
95% KM (jackknife) UCL	0.0049
95% KM (bootstrap t) UCL	0.00972
95% KM (BCA) UCL	0.00612
95% KM (Percentile Bootstrap) UCL	0.00556
95% KM (Chebyshev) UCL	0.00778
97.5% KM (Chebyshev) UCL	0.00961
99% KM (Chebyshev) UCL	0.0132

Potential UCLs to Use

95% KM (t) UCL	0.00518
95% KM (% Bootstrap) UCL	0.00556

Result (chromium)

General Statistics

Number of Valid Observations	60	Number of Distinct Observations	58

Raw Statistics

Minimum	0.524
Maximum	27.1
Mean	5.148
Median	3.08
SD	6.074
Coefficient of Variation	1.18
Skewness	2.524

Log-transformed Statistics

Minimum of Log Data	-0.646
Maximum of Log Data	3.3
Mean of log Data	1.23
SD of log Data	0.835

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.315
Lilliefors Critical Value	0.114

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.139
Lilliefors Critical Value	0.114

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	6.458

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	6.71
95% Modified-t UCL	6.5

Assuming Lognormal Distribution

95% H-UCL	6.103
95% Chebyshev (MVUE) UCL	7.371
97.5% Chebyshev (MVUE) UCL	8.48
99% Chebyshev (MVUE) UCL	10.66

Gamma Distribution Test

k star (bias corrected)	1.309
Theta Star	3.931
nu star	157.1
Approximate Chi Square Value (.05)	129.1
Adjusted Level of Significance	0.046
Adjusted Chi Square Value	128.5
Anderson-Darling Test Statistic	3.271
Anderson-Darling 5% Critical Value	0.772
Kolmogorov-Smirnov Test Statistic	0.213
Kolmogorov-Smirnov 5% Critical Value	0.117

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	6.263
95% Adjusted Gamma UCL	6.293

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	6.437
95% Jackknife UCL	6.458
95% Standard Bootstrap UCL	6.446
95% Bootstrap-t UCL	7.048
95% Hall's Bootstrap UCL	6.646
95% Percentile Bootstrap UCL	6.447
95% BCA Bootstrap UCL	6.802
95% Chebyshev(Mean, Sd) UCL	8.565
97.5% Chebyshev(Mean, Sd) UCL	10.04
99% Chebyshev(Mean, Sd) UCL	12.95

Potential UCL to Use

Use 95% Chebyshev (Mean, Sd) UCL 8.565

Result (copper)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.41	Minimum of Log Data	0.344
Maximum	330	Maximum of Log Data	5.799
Mean	43.24	Mean of log Data	2.092
Median	3.52	SD of log Data	1.79
SD	101.6		
Coefficient of Variation	2.349		
Skewness	3.07		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.464	Shapiro Wilk Test Statistic	0.85
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	102.1	95% H-UCL	743.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	105.6
95% Adjusted-CLT UCL	129.4	97.5% Chebyshev (MVUE) UCL	138.6
95% Modified-t UCL	107.3	99% Chebyshev (MVUE) UCL	203.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.342	Data appear Lognormal at 5% Significance Level
Theta Star	126.3	
nu star	6.849	
Approximate Chi Square Value (.05)	2.088	
Adjusted Level of Significance	0.0267	
Adjusted Chi Square Value	1.663	
Anderson-Darling Test Statistic	1.147	
Anderson-Darling 5% Critical Value	0.796	
Kolmogorov-Smirnov Test Statistic	0.286	
Kolmogorov-Smirnov 5% Critical Value	0.285	
Data not Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	96.07
95% Jackknife UCL	102.1
95% Standard Bootstrap UCL	93.24
95% Bootstrap-t UCL	400.8
95% Hall's Bootstrap UCL	318
95% Percentile Bootstrap UCL	105.6
95% BCA Bootstrap UCL	138.3
95% Chebyshev(Mean, Sd) UCL	183.2
97.5% Chebyshev(Mean, Sd) UCL	243.8
99% Chebyshev(Mean, Sd) UCL	362.8

Assuming Gamma Distribution	
95% Approximate Gamma UCL	141.8
95% Adjusted Gamma UCL	178.1

Potential UCL to Use	Use 99% Chebyshev (MVUE) UCL 203.3

Result (lead)

General Statistics

Number of Valid Data	50	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	43
		Percent Non-Detects	86.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.18	Minimum Detected	0.166
Maximum Detected	62.5	Maximum Detected	4.135
Mean of Detected	14.73	Mean of Detected	1.568
SD of Detected	23.48	SD of Detected	1.557
Minimum Non-Detect	1	Minimum Non-Detect	0
Maximum Non-Detect	6.82	Maximum Non-Detect	1.92

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	48
Number treated as Detected	2
Single DL Non-Detect Percentage	96.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.667
5% Shapiro Wilk Critical Value	0.803

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.76
SD	9.566
95% DL/2 (t) UCL	5.028
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.82
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-0.0354
SD	0.915
95% H-Stat (DL/2) UCL	1.588
Log ROS Method	
Mean in Log Scale	-3.034
SD in Log Scale	2.35
Mean in Original Scale	2.106
SD in Original Scale	9.694
95% Percentile Bootstrap UCL	4.563
95% BCA Bootstrap UCL	6.235

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.414
Theta Star	35.61
nu star	5.79
A-D Test Statistic	0.887
5% A-D Critical Value	0.748
K-S Test Statistic	0.748
5% K-S Critical Value	0.326

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1.18
Maximum	62.5
Mean	16.38
Median	15.75
SD	10.14
k star	2.357
Theta star	6.95
Nu star	235.7
AppChi2	201.1
95% Gamma Approximate UCL	19.19
95% Adjusted Gamma UCL	19.28

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	3.087
SD	9.393
SE of Mean	1.435
95% KM (t) UCL	5.493
95% KM (z) UCL	5.447
95% KM (jackknife) UCL	5.209
95% KM (bootstrap t) UCL	43.4
95% KM (BCA) UCL	7.035
95% KM (Percentile Bootstrap) UCL	5.789
95% KM (Chebyshev) UCL	9.341
97.5% KM (Chebyshev) UCL	12.05
99% KM (Chebyshev) UCL	17.36

Potential UCLs to Use

95% KM (Chebyshev) UCL	9.341

Result (mercury)

General Statistics

Number of Valid Data	50	Number of Detected Data	22
Number of Distinct Detected Data	22	Number of Non-Detect Data	28
		Percent Non-Detects	56.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00412	Minimum Detected	-5.492
Maximum Detected	1.44	Maximum Detected	0.365
Mean of Detected	0.118	Mean of Detected	-3.387
SD of Detected	0.301	SD of Detected	1.507
Minimum Non-Detect	0.0283	Minimum Non-Detect	-3.565
Maximum Non-Detect	0.045	Maximum Non-Detect	-3.101

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	40
Number treated as Detected	10
Single DL Non-Detect Percentage	80.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.371	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.911	5% Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0621	Mean	-3.739
SD	0.203	SD	1.038
95% DL/2 (t) UCL	0.11	95% H-Stat (DL/2) UCL	0.0688
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.005
		SD in Log Scale	1.219
		Mean in Original Scale	0.0594
		SD in Original Scale	0.204
		95% Percentile Bootstrap UCL	0.115
		95% BCA Bootstrap UCL	0.151

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.468	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	0.252	
nu star	20.59	
A-D Test Statistic	1.265	
5% A-D Critical Value	0.804	
K-S Test Statistic	0.804	
5% K-S Critical Value	0.196	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00412
Maximum	1.44
Mean	0.118
Median	0.118
SD	0.197
k star	0.994
Theta star	0.119
Nu star	99.38
AppChi2	77.38
95% Gamma Approximate UCL	0.152
95% Adjusted Gamma UCL	0.153

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0591
SD	0.202
SE of Mean	0.0293
95% KM (t) UCL	0.108
95% KM (z) UCL	0.107
95% KM (jackknife) UCL	0.108
95% KM (bootstrap t) UCL	0.265
95% KM (BCA) UCL	0.113
95% KM (Percentile Bootstrap) UCL	0.115
95% KM (Chebyshev) UCL	0.187
97.5% KM (Chebyshev) UCL	0.242
99% KM (Chebyshev) UCL	0.35

Potential UCLs to Use	
95% KM (t) UCL	0.108

Result (nickel)

General Statistics

Number of Valid Data	10	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	3
		Percent Non-Detects	30.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.67	Minimum Detected	-0.4
Maximum Detected	4.74	Maximum Detected	1.556
Mean of Detected	1.46	Mean of Detected	0.114
SD of Detected	1.47	SD of Detected	0.685
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.599	Shapiro Wilk Test Statistic	0.762
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.097	Mean	-0.336
SD	1.335	SD	0.916
95% DL/2 (t) UCL	1.87	95% H-Stat (DL/2) UCL	1.262
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.831	Mean in Log Scale	-0.377
SD	1.567	SD in Log Scale	0.985
95% MLE (t) UCL	1.739	Mean in Original Scale	1.09
95% MLE (Tiku) UCL	1.777	SD in Original Scale	1.34
		95% Percentile Bootstrap UCL	1.845
		95% BCA Bootstrap UCL	2.265

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.264	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	1.155	
nu star	17.7	
A-D Test Statistic	1.022	
5% A-D Critical Value	0.715	
K-S Test Statistic	0.715	
5% K-S Critical Value	0.315	
Data follow Appr. Gamma Distribution at 5% Significance Level		
Assuming Gamma Distribution		
Gamma ROS Statistics using Extrapolated Data		
Minimum	0.071	
Maximum	4.74	
Mean	1.164	
Median	0.818	
SD	1.304	
k star	0.994	
Theta star	1.171	
Nu star	19.89	
AppChi2	10.77	
95% Gamma Approximate UCL	2.151	
95% Adjusted Gamma UCL	2.407	

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.223
SD	1.194
SE of Mean	0.408
95% KM (t) UCL	1.971
95% KM (z) UCL	1.894
95% KM (jackknife) UCL	1.942
95% KM (bootstrap t) UCL	6.555
95% KM (BCA) UCL	2.013
95% KM (Percentile Bootstrap) UCL	1.976
95% KM (Chebyshev) UCL	3.001
97.5% KM (Chebyshev) UCL	3.771
99% KM (Chebyshev) UCL	5.282
Potential UCLs to Use	
95% KM (Percentile Bootstrap) UCL	1.976

Result (vanadium)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.875	Minimum of Log Data	-0.134
Maximum	10.5	Maximum of Log Data	2.351
Mean	3.207	Mean of log Data	0.88
Median	2.3	SD of log Data	0.752
SD	2.96		
Coefficient of Variation	0.923		
Skewness	2.032		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.741	Shapiro Wilk Test Statistic	0.949
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.922	95% H-UCL	6.175
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.408
95% Adjusted-CLT UCL	5.389	97.5% Chebyshev (MVUE) UCL	7.843
95% Modified-t UCL	5.023	99% Chebyshev (MVUE) UCL	10.66

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.397	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.296	
nu star	27.94	
Approximate Chi Square Value (.05)	16.88	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 4.746
Adjusted Chi Square Value	15.4	95% Jackknife UCL 4.922
		95% Standard Bootstrap UCL 4.67
Anderson-Darling Test Statistic	0.511	95% Bootstrap-t UCL 8.362
Anderson-Darling 5% Critical Value	0.736	95% Hall's Bootstrap UCL 13.14
Kolmogorov-Smirnov Test Statistic	0.232	95% Percentile Bootstrap UCL 4.795
Kolmogorov-Smirnov 5% Critical Value	0.27	95% BCA Bootstrap UCL 5.449
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.287
		97.5% Chebyshev(Mean, Sd) UCL 9.053
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12.52
95% Approximate Gamma UCL	5.307	
95% Adjusted Gamma UCL	5.816	

Potential UCL to Use		Use 95% Approximate Gamma UCL	5.307

Result (zinc)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	4.98	Minimum of Log Data	1.605
Maximum	222	Maximum of Log Data	5.403
Mean	36.95	Mean of log Data	2.757
Median	8.93	SD of log Data	1.223
SD	66.43		
Coefficient of Variation	1.798		
Skewness	2.924		

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.531
Shapiro Wilk Critical Value	0.842

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	75.46

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	92.27
95% Modified-t UCL	78.7

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.849
Shapiro Wilk Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	143.3
95% Chebyshev (MVUE) UCL	82.84
97.5% Chebyshev (MVUE) UCL	105.8
99% Chebyshev (MVUE) UCL	150.9

Gamma Distribution Test

k star (bias corrected)	0.562
Theta Star	65.72
nu star	11.25
Approximate Chi Square Value (.05)	4.734
Adjusted Level of Significance	0.0267
Adjusted Chi Square Value	4.026
Anderson-Darling Test Statistic	1.048
Anderson-Darling 5% Critical Value	0.76
Kolmogorov-Smirnov Test Statistic	0.282
Kolmogorov-Smirnov 5% Critical Value	0.277

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	87.78
95% Adjusted Gamma UCL	103.2

Data Distribution

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	71.51
95% Jackknife UCL	75.46
95% Standard Bootstrap UCL	68.93
95% Bootstrap-t UCL	195
95% Hall's Bootstrap UCL	200.2
95% Percentile Bootstrap UCL	76.27
95% BCA Bootstrap UCL	95.48
95% Chebyshev(Mean, Sd) UCL	128.5
97.5% Chebyshev(Mean, Sd) UCL	168.2
99% Chebyshev(Mean, Sd) UCL	246

Potential UCL to Use

Use 95% Chebyshev (MVUE) UCL 82.84

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (acetone)

General Statistics

Number of Valid Data	40	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	34
		Percent Non-Detects	85.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0052	Minimum Detected	-5.259
Maximum Detected	0.4	Maximum Detected	-0.916
Mean of Detected	0.113	Mean of Detected	-3.047
SD of Detected	0.15	SD of Detected	1.582
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.017	Maximum Non-Detect	-4.075

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	4
Single DL Non-Detect Percentage	90.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.774
5% Shapiro Wilk Critical Value	0.788

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.991
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0201
SD	0.0667
95% DL/2 (t) UCL	0.0378
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.247
SD	1.11
95% H-Stat (DL/2) UCL	0.0129
Log ROS Method	
Mean in Log Scale	-7.37
SD in Log Scale	2.318
Mean in Original Scale	0.0175
SD in Original Scale	0.0674
95% Percentile Bootstrap UCL	0.0373
95% BCA Bootstrap UCL	0.0484

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.46
Theta Star	0.246
nu star	5.518
A-D Test Statistic	0.193
5% A-D Critical Value	0.724
K-S Test Statistic	0.724
5% K-S Critical Value	0.345

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0052
Maximum	0.4
Mean	0.111
Median	0.116
SD	0.0623
k star	2.604
Theta star	0.0425
Nu star	208.4
AppChi2	175.9
95% Gamma Approximate UCL	0.131
95% Adjusted Gamma UCL	0.132

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0214
SD	0.0656
SE of Mean	0.0114
95% KM (t) UCL	0.0405
95% KM (z) UCL	0.0401
95% KM (jackknife) UCL	0.036
95% KM (bootstrap t) UCL	0.0724
95% KM (BCA) UCL	0.0951
95% KM (Percentile Bootstrap) UCL	0.0671
95% KM (Chebyshev) UCL	0.0709
97.5% KM (Chebyshev) UCL	0.0923
99% KM (Chebyshev) UCL	0.134

Potential UCLs to Use

95% KM (t) UCL	0.0405

Result (barium)

General Statistics

Number of Valid Observations	50	Number of Distinct Observations	48

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.54	Minimum of Log Data	1.712
Maximum	110	Maximum of Log Data	4.7
Mean	44.92	Mean of log Data	3.642
Median	41.7	SD of log Data	0.628
SD	23.59		
Coefficient of Variation	0.525		
Skewness	0.659		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.96	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	50.51	95% H-UCL	55.46
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	65.55
95% Adjusted-CLT UCL	50.74	97.5% Chebyshev (MVUE) UCL	73.89
95% Modified-t UCL	50.56	99% Chebyshev (MVUE) UCL	90.28

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.047	**Data appear Normal at 5% Significance Level**
Theta Star	14.74	
nu star	304.7	
Approximate Chi Square Value (.05)	265.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0452	95% CLT UCL 50.41
Adjusted Chi Square Value	264.1	95% Jackknife UCL 50.51
		95% Standard Bootstrap UCL 50.24
Anderson-Darling Test Statistic	0.285	95% Bootstrap-t UCL 50.88
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL 51.05
Kolmogorov-Smirnov Test Statistic	0.0781	95% Percentile Bootstrap UCL 50.44
Kolmogorov-Smirnov 5% Critical Value	0.126	95% BCA Bootstrap UCL 50.91
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 59.46
		97.5% Chebyshev(Mean, Sd) UCL 65.75
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 78.11
95% Approximate Gamma UCL	51.6	
95% Adjusted Gamma UCL	51.81	

Potential UCL to Use	Use 95% Student's-t UCL 50.51

Result (cadmium)

General Statistics

Number of Valid Data	50	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	44
		Percent Non-Detects	88.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0809	Minimum Detected	-2.515
Maximum Detected	2.08	Maximum Detected	0.732
Mean of Detected	0.674	Mean of Detected	-1.072
SD of Detected	0.821	SD of Detected	1.28
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1.36	Maximum Non-Detect	0.307

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	49
Number treated as Detected	1
Single DL Non-Detect Percentage	98.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.766	Shapiro Wilk Test Statistic	0.903
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.221	Mean	-1.825
SD	0.325	SD	0.604
95% DL/2 (t) UCL	0.298	95% H-Stat (DL/2) UCL	0.214
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.121
		SD in Log Scale	0.683
		Mean in Original Scale	0.179
		SD in Original Scale	0.323
		95% Percentile Bootstrap UCL	0.258
		95% BCA Bootstrap UCL	0.302

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.545	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.237	
nu star	6.536	
A-D Test Statistic	0.535	
5% A-D Critical Value	0.718	
K-S Test Statistic	0.718	
5% K-S Critical Value	0.342	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0809
Maximum	2.08
Mean	0.717
Median	0.722
SD	0.266
k star	5.826
Theta star	0.123
Nu star	582.6
AppChi2	527.6
95% Gamma Approximate UCL	0.791
95% Adjusted Gamma UCL	0.794

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.192
SD	0.319
SE of Mean	0.0539
95% KM (t) UCL	0.283
95% KM (z) UCL	0.281
95% KM (jackknife) UCL	0.288
95% KM (bootstrap t) UCL	0.344
95% KM (BCA) UCL	0.34
95% KM (Percentile Bootstrap) UCL	0.318
95% KM (Chebyshev) UCL	0.427
97.5% KM (Chebyshev) UCL	0.529
99% KM (Chebyshev) UCL	0.729
Potential UCLs to Use	
95% KM (t) UCL	0.283

Result (carbon disulfide)

General Statistics

Number of Valid Data	40	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	30
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0018	Minimum Detected	-6.32
Maximum Detected	0.037	Maximum Detected	-3.297
Mean of Detected	0.0083	Mean of Detected	-5.254
SD of Detected	0.0108	SD of Detected	0.904
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0067	Maximum Non-Detect	-5.006

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	37
Number treated as Detected	3
Single DL Non-Detect Percentage	92.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.617	Shapiro Wilk Test Statistic	0.895
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00319	Mean	-6.214
SD	0.00598	SD	0.733
95% DL/2 (t) UCL	0.00479	95% H-Stat (DL/2) UCL	0.003
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.402
		SD in Log Scale	0.925
		Mean in Original Scale	0.00304
		SD in Original Scale	0.00604
		95% Percentile Bootstrap UCL	0.00482
		95% BCA Bootstrap UCL	0.00612

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.921	Data appear Lognormal at 5% Significance Level
Theta Star	0.00901	
nu star	18.43	
A-D Test Statistic	0.897	
5% A-D Critical Value	0.744	
K-S Test Statistic	0.744	
5% K-S Critical Value	0.273	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0018	Mean	0.00354
Maximum	0.037	SD	0.00581
Mean	0.00876	SE of Mean	0.000973
Median	0.00895	95% KM (t) UCL	0.00518
SD	0.0053	95% KM (z) UCL	0.00514
k star	3.893	95% KM (jackknife) UCL	0.0049
Theta star	0.00225	95% KM (bootstrap t) UCL	0.00972
Nu star	311.4	95% KM (BCA) UCL	0.00612
AppChi2	271.5	95% KM (Percentile Bootstrap) UCL	0.00556
95% Gamma Approximate UCL	0.01	95% KM (Chebyshev) UCL	0.00778
95% Adjusted Gamma UCL	0.0101	97.5% KM (Chebyshev) UCL	0.00961
		99% KM (Chebyshev) UCL	0.0132
		Potential UCLs to Use	
		95% KM (t) UCL	0.00518
		95% KM (% Bootstrap) UCL	0.00556

Note: DL/2 is not a recommended method.

Result (chromium)

General Statistics

Number of Valid Observations	60	Number of Distinct Observations	58

Raw Statistics		Log-transformed Statistics	
Minimum	0.524	Minimum of Log Data	-0.646
Maximum	27.1	Maximum of Log Data	3.3
Mean	5.148	Mean of log Data	1.23
Median	3.08	SD of log Data	0.835
SD	6.074		
Coefficient of Variation	1.18		
Skewness	2.524		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.315	Lilliefors Test Statistic	0.139
Lilliefors Critical Value	0.114	Lilliefors Critical Value	0.114
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6.458	95% H-UCL	6.103
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.371
95% Adjusted-CLT UCL	6.71	97.5% Chebyshev (MVUE) UCL	8.48
95% Modified-t UCL	6.5	99% Chebyshev (MVUE) UCL	10.66

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.309	Data do not follow a Discernable Distribution (0.05)
Theta Star	3.931	
nu star	157.1	
Approximate Chi Square Value (.05)	129.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.046	95% CLT UCL 6.437
Adjusted Chi Square Value	128.5	95% Jackknife UCL 6.458
		95% Standard Bootstrap UCL 6.446
Anderson-Darling Test Statistic	3.271	95% Bootstrap-t UCL 7.048
Anderson-Darling 5% Critical Value	0.772	95% Hall's Bootstrap UCL 6.646
Kolmogorov-Smirnov Test Statistic	0.213	95% Percentile Bootstrap UCL 6.447
Kolmogorov-Smirnov 5% Critical Value	0.117	95% BCA Bootstrap UCL 6.802
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 8.565
		97.5% Chebyshev(Mean, Sd) UCL 10.04
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12.95
95% Approximate Gamma UCL	6.263	
95% Adjusted Gamma UCL	6.293	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 8.565

Result (copper)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.41	Minimum of Log Data	0.344
Maximum	330	Maximum of Log Data	5.799
Mean	43.24	Mean of log Data	2.092
Median	3.52	SD of log Data	1.79
SD	101.6		
Coefficient of Variation	2.349		
Skewness	3.07		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.464	Shapiro Wilk Test Statistic	0.85
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	102.1	95% H-UCL	743.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	105.6
95% Adjusted-CLT UCL	129.4	97.5% Chebyshev (MVUE) UCL	138.6
95% Modified-t UCL	107.3	99% Chebyshev (MVUE) UCL	203.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.342	Data appear Lognormal at 5% Significance Level
Theta Star	126.3	
nu star	6.849	
Approximate Chi Square Value (.05)	2.088	
Adjusted Level of Significance	0.0267	
Adjusted Chi Square Value	1.663	
Anderson-Darling Test Statistic	1.147	
Anderson-Darling 5% Critical Value	0.796	
Kolmogorov-Smirnov Test Statistic	0.286	
Kolmogorov-Smirnov 5% Critical Value	0.285	
Data not Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	96.07
95% Jackknife UCL	102.1
95% Standard Bootstrap UCL	93.24
95% Bootstrap-t UCL	400.8
95% Hall's Bootstrap UCL	318
95% Percentile Bootstrap UCL	105.6
95% BCA Bootstrap UCL	138.3
95% Chebyshev(Mean, Sd) UCL	183.2
97.5% Chebyshev(Mean, Sd) UCL	243.8
99% Chebyshev(Mean, Sd) UCL	362.8

Assuming Gamma Distribution	
95% Approximate Gamma UCL	141.8
95% Adjusted Gamma UCL	178.1

Potential UCL to Use	Use 99% Chebyshev (MVUE) UCL 203.3

Result (lead)

General Statistics

Number of Valid Data	50	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	43
		Percent Non-Detects	86.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.18	Minimum Detected	0.166
Maximum Detected	62.5	Maximum Detected	4.135
Mean of Detected	14.73	Mean of Detected	1.568
SD of Detected	23.48	SD of Detected	1.557
Minimum Non-Detect	1	Minimum Non-Detect	0
Maximum Non-Detect	6.82	Maximum Non-Detect	1.92

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	48
Number treated as Detected	2
Single DL Non-Detect Percentage	96.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.667
5% Shapiro Wilk Critical Value	0.803

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.76
SD	9.566
95% DL/2 (t) UCL	5.028
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.82
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-0.0354
SD	0.915
95% H-Stat (DL/2) UCL	1.588
Log ROS Method	
Mean in Log Scale	-3.034
SD in Log Scale	2.35
Mean in Original Scale	2.106
SD in Original Scale	9.694
95% Percentile Bootstrap UCL	4.563
95% BCA Bootstrap UCL	6.235

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.414
Theta Star	35.61
nu star	5.79
A-D Test Statistic	0.887
5% A-D Critical Value	0.748
K-S Test Statistic	0.748
5% K-S Critical Value	0.326

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1.18
Maximum	62.5
Mean	16.38
Median	15.75
SD	10.14
k star	2.357
Theta star	6.95
Nu star	235.7
AppChi2	201.1
95% Gamma Approximate UCL	19.19
95% Adjusted Gamma UCL	19.28

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	3.087
SD	9.393
SE of Mean	1.435
95% KM (t) UCL	5.493
95% KM (z) UCL	5.447
95% KM (jackknife) UCL	5.209
95% KM (bootstrap t) UCL	43.4
95% KM (BCA) UCL	7.035
95% KM (Percentile Bootstrap) UCL	5.789
95% KM (Chebyshev) UCL	9.341
97.5% KM (Chebyshev) UCL	12.05
99% KM (Chebyshev) UCL	17.36

Potential UCLs to Use

95% KM (Chebyshev) UCL	9.341

Result (mercury)

General Statistics

Number of Valid Data	50	Number of Detected Data	22
Number of Distinct Detected Data	22	Number of Non-Detect Data	28
		Percent Non-Detects	56.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00412	Minimum Detected	-5.492
Maximum Detected	1.44	Maximum Detected	0.365
Mean of Detected	0.118	Mean of Detected	-3.387
SD of Detected	0.301	SD of Detected	1.507
Minimum Non-Detect	0.0283	Minimum Non-Detect	-3.565
Maximum Non-Detect	0.045	Maximum Non-Detect	-3.101

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	40
Number treated as Detected	10
Single DL Non-Detect Percentage	80.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.371	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.911	5% Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0621	Mean	-3.739
SD	0.203	SD	1.038
95% DL/2 (t) UCL	0.11	95% H-Stat (DL/2) UCL	0.0688
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.005
		SD in Log Scale	1.219
		Mean in Original Scale	0.0594
		SD in Original Scale	0.204
		95% Percentile Bootstrap UCL	0.115
		95% BCA Bootstrap UCL	0.151

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.468	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	0.252	
nu star	20.59	
A-D Test Statistic	1.265	
5% A-D Critical Value	0.804	
K-S Test Statistic	0.804	
5% K-S Critical Value	0.196	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00412
Maximum	1.44
Mean	0.118
Median	0.118
SD	0.197
k star	0.994
Theta star	0.119
Nu star	99.38
AppChi2	77.38
95% Gamma Approximate UCL	0.152
95% Adjusted Gamma UCL	0.153

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0591
SD	0.202
SE of Mean	0.0293
95% KM (t) UCL	0.108
95% KM (z) UCL	0.107
95% KM (jackknife) UCL	0.108
95% KM (bootstrap t) UCL	0.265
95% KM (BCA) UCL	0.113
95% KM (Percentile Bootstrap) UCL	0.115
95% KM (Chebyshev) UCL	0.187
97.5% KM (Chebyshev) UCL	0.242
99% KM (Chebyshev) UCL	0.35

Potential UCLs to Use	
95% KM (t) UCL	0.108

Result (nickel)

General Statistics

Number of Valid Data	10	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	3
		Percent Non-Detects	30.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.67	Minimum Detected	-0.4
Maximum Detected	4.74	Maximum Detected	1.556
Mean of Detected	1.46	Mean of Detected	0.114
SD of Detected	1.47	SD of Detected	0.685
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.599	Shapiro Wilk Test Statistic	0.762
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.097	Mean	-0.336
SD	1.335	SD	0.916
95% DL/2 (t) UCL	1.87	95% H-Stat (DL/2) UCL	1.262
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.831	Mean in Log Scale	-0.377
SD	1.567	SD in Log Scale	0.985
95% MLE (t) UCL	1.739	Mean in Original Scale	1.09
95% MLE (Tiku) UCL	1.777	SD in Original Scale	1.34
		95% Percentile Bootstrap UCL	1.845
		95% BCA Bootstrap UCL	2.265

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.264	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	1.155		
nu star	17.7		
A-D Test Statistic	1.022	**Nonparametric Statistics**	
5% A-D Critical Value	0.715	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.715	Mean	1.223
5% K-S Critical Value	0.315	SD	1.194
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.408
		95% KM (t) UCL	1.971
Assuming Gamma Distribution		95% KM (z) UCL	1.894
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.942
Minimum	0.071	95% KM (bootstrap t) UCL	6.555
Maximum	4.74	95% KM (BCA) UCL	2.013
Mean	1.164	95% KM (Percentile Bootstrap) UCL	1.976
Median	0.818	95% KM (Chebyshev) UCL	3.001
SD	1.304	97.5% KM (Chebyshev) UCL	3.771
k star	0.994	99% KM (Chebyshev) UCL	5.282
Theta star	1.171		
Nu star	19.89	**Potential UCLs to Use**	
AppChi2	10.77	95% KM (Percentile Bootstrap) UCL	1.976
95% Gamma Approximate UCL	2.151		
95% Adjusted Gamma UCL	2.407		

Note: DL/2 is not a recommended method.

Result (vanadium)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	0.875	Minimum of Log Data	-0.134
Maximum	10.5	Maximum of Log Data	2.351
Mean	3.207	Mean of log Data	0.88
Median	2.3	SD of log Data	0.752
SD	2.96		
Coefficient of Variation	0.923		
Skewness	2.032		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.741	Shapiro Wilk Test Statistic	0.949
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.922	95% H-UCL	6.175
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.408
95% Adjusted-CLT UCL	5.389	97.5% Chebyshev (MVUE) UCL	7.843
95% Modified-t UCL	5.023	99% Chebyshev (MVUE) UCL	10.66

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.397	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.296	
nu star	27.94	
Approximate Chi Square Value (.05)	16.88	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 4.746
Adjusted Chi Square Value	15.4	95% Jackknife UCL 4.922
		95% Standard Bootstrap UCL 4.67
Anderson-Darling Test Statistic	0.511	95% Bootstrap-t UCL 8.362
Anderson-Darling 5% Critical Value	0.736	95% Hall's Bootstrap UCL 13.14
Kolmogorov-Smirnov Test Statistic	0.232	95% Percentile Bootstrap UCL 4.795
Kolmogorov-Smirnov 5% Critical Value	0.27	95% BCA Bootstrap UCL 5.449
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.287
		97.5% Chebyshev(Mean, Sd) UCL 9.053
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12.52
95% Approximate Gamma UCL	5.307	
95% Adjusted Gamma UCL	5.816	

Potential UCL to Use	Use 95% Approximate Gamma UCL 5.307

Result (zinc)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	4.98	Minimum of Log Data	1.605
Maximum	222	Maximum of Log Data	5.403
Mean	36.95	Mean of log Data	2.757
Median	8.93	SD of log Data	1.223
SD	66.43		
Coefficient of Variation	1.798		
Skewness	2.924		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.531	Shapiro Wilk Test Statistic	0.849
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	75.46	95% H-UCL	143.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	82.84
95% Adjusted-CLT UCL	92.27	97.5% Chebyshev (MVUE) UCL	105.8
95% Modified-t UCL	78.7	99% Chebyshev (MVUE) UCL	150.9

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.562	Data appear Lognormal at 5% Significance Level
Theta Star	65.72	
nu star	11.25	
Approximate Chi Square Value (.05)	4.734	
Adjusted Level of Significance	0.0267	
Adjusted Chi Square Value	4.026	
Anderson-Darling Test Statistic	1.048	
Anderson-Darling 5% Critical Value	0.76	
Kolmogorov-Smirnov Test Statistic	0.282	
Kolmogorov-Smirnov 5% Critical Value	0.277	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
95% Approximate Gamma UCL	87.78	95% CLT UCL	71.51
95% Adjusted Gamma UCL	103.2	95% Jackknife UCL	75.46
		95% Standard Bootstrap UCL	68.93
		95% Bootstrap-t UCL	195
		95% Hall's Bootstrap UCL	200.2
		95% Percentile Bootstrap UCL	76.27
		95% BCA Bootstrap UCL	95.48
		95% Chebyshev(Mean, Sd) UCL	128.5
		97.5% Chebyshev(Mean, Sd) UCL	168.2
		99% Chebyshev(Mean, Sd) UCL	246

Potential UCL to Use		Use 95% Chebyshev (MVUE) UCL	82.84

Attachment C – ProUCL Output for SWMUs 38-39

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (arsenic)

General Statistics

Number of Valid Data	20	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	11
		Percent Non-Detects	55.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	9.29	Minimum Detected	2.229
Maximum Detected	17.5	Maximum Detected	2.862
Mean of Detected	13.18	Mean of Detected	2.556
SD of Detected	2.911	SD of Detected	0.224
Minimum Non-Detect	2.88	Minimum Non-Detect	1.058
Maximum Non-Detect	55	Maximum Non-Detect	4.007

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	20
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.922
5% Shapiro Wilk Critical Value	0.829

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	13.3
SD	9.2
95% DL/2 (t) UCL	16.86
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	2.179
SD	1.108
95% H-Stat (DL/2) UCL	47.11
Log ROS Method	
Mean in Log Scale	2.357
SD in Log Scale	0.275
Mean in Original Scale	10.95
SD in Original Scale	3.094
95% Percentile Bootstrap UCL	12.05
95% BCA Bootstrap UCL	12.1

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	15.32
Theta Star	0.86
nu star	275.8
A-D Test Statistic	0.33
5% A-D Critical Value	0.721
K-S Test Statistic	0.721
5% K-S Critical Value	0.279

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	9.29
Maximum	17.5
Mean	13.37
Median	13.35
SD	2.571
k star	23.94
Theta star	0.559
Nu star	957.4
AppChi2	886.6
95% Gamma Approximate UCL	14.44
95% Adjusted Gamma UCL	14.52

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	11.79
SD	2.883
SE of Mean	0.817
95% KM (t) UCL	13.2
95% KM (z) UCL	13.13
95% KM (jackknife) UCL	13.15
95% KM (bootstrap t) UCL	13.45
95% KM (BCA) UCL	13.77
95% KM (Percentile Bootstrap) UCL	13.6
95% KM (Chebyshev) UCL	15.35
97.5% KM (Chebyshev) UCL	16.89
99% KM (Chebyshev) UCL	19.92

Potential UCLs to Use

95% KM (t) UCL	13.2
95% KM (Percentile Bootstrap) UCL	13.6

Result (barium)

General Statistics

Number of Valid Data	20	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	8
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	42.4	Minimum Detected	3.747
Maximum Detected	144	Maximum Detected	4.97
Mean of Detected	67.23	Mean of Detected	4.153
SD of Detected	27.02	SD of Detected	0.326
Minimum Non-Detect	30.2	Minimum Non-Detect	3.408
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	19
Number treated as Detected	1
Single DL Non-Detect Percentage	95.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.74	Shapiro Wilk Test Statistic	0.881
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	55.81	Mean	3.891
SD	27.79	SD	0.567
95% DL/2 (t) UCL	66.55	95% H-Stat (DL/2) UCL	86.73
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	4.001
		SD in Log Scale	0.369
		Mean in Original Scale	58.59
		SD in Original Scale	25.03
		95% Percentile Bootstrap UCL	68.21
		95% BCA Bootstrap UCL	71.19

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	6.95	Data appear Gamma Distributed at 5% Significance Level
Theta Star	9.672	
nu star	166.8	
A-D Test Statistic	0.722	
5% A-D Critical Value	0.731	
K-S Test Statistic	0.731	
5% K-S Critical Value	0.245	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	38.81
Maximum	144
Mean	64.53
Median	57
SD	24.43
k star	7.675
Theta star	8.408
Nu star	307
AppChi2	267.4
95% Gamma Approximate UCL	74.08
95% Adjusted Gamma UCL	74.9

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	60.8
SD	22.89
SE of Mean	5.63
95% KM (t) UCL	70.54
95% KM (z) UCL	70.06
95% KM (jackknife) UCL	70.19
95% KM (bootstrap t) UCL	76.41
95% KM (BCA) UCL	73.32
95% KM (Percentile Bootstrap) UCL	71.23
95% KM (Chebyshev) UCL	85.34
97.5% KM (Chebyshev) UCL	95.96
99% KM (Chebyshev) UCL	116.8
Potential UCLs to Use	
95% KM (t) UCL	70.54

Result (lead)

General Statistics

Number of Valid Data	20	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	15
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.24	Minimum Detected	1.176
Maximum Detected	20	Maximum Detected	2.996
Mean of Detected	7.888	Mean of Detected	1.815
SD of Detected	7	SD of Detected	0.742
Minimum Non-Detect	3.01	Minimum Non-Detect	1.102
Maximum Non-Detect	27	Maximum Non-Detect	3.296

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	20
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.753	Shapiro Wilk Test Statistic	0.885
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.969	Mean	1.309
SD	5.872	SD	0.998
95% DL/2 (t) UCL	8.239	95% H-Stat (DL/2) UCL	10.52
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.127
		SD in Log Scale	1.188
		Mean in Original Scale	2.582
		SD in Original Scale	4.54
		95% Percentile Bootstrap UCL	4.441
		95% BCA Bootstrap UCL	5.241

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.995	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	7.931		
nu star	9.946		
A-D Test Statistic	0.483	**Nonparametric Statistics**	
5% A-D Critical Value	0.684	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.684	Mean	4.789
5% K-S Critical Value	0.36	SD	4.227
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.22
		95% KM (t) UCL	6.899
Assuming Gamma Distribution		95% KM (z) UCL	6.796
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.607
Minimum	3.24	95% KM (bootstrap t) UCL	13.77
Maximum	20	95% KM (BCA) UCL	9.792
Mean	8.145	95% KM (Percentile Bootstrap) UCL	7.69
Median	7.887	95% KM (Chebyshev) UCL	10.11
SD	3.288	97.5% KM (Chebyshev) UCL	12.41
k star	6.635	99% KM (Chebyshev) UCL	16.93
Theta star	1.228		
Nu star	265.4	**Potential UCLs to Use**	
AppChi2	228.7	95% KM (t) UCL	6.899
95% Gamma Approximate UCL	9.453		
95% Adjusted Gamma UCL	9.565		

Note: DL/2 is not a recommended method.

Result (selenium)

General Statistics

Number of Valid Data	20	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	14
		Percent Non-Detects	70.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.51	Minimum Detected	1.506
Maximum Detected	11.4	Maximum Detected	2.434
Mean of Detected	6.537	Mean of Detected	1.828
SD of Detected	2.505	SD of Detected	0.327
Minimum Non-Detect	2.88	Minimum Non-Detect	1.058
Maximum Non-Detect	55	Maximum Non-Detect	4.007

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	20
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.871
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.569	Mean	1.644
SD	10.21	SD	1.174
95% DL/2 (t) UCL	13.52	95% H-Stat (DL/2) UCL	28.81
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.241
		SD in Log Scale	0.477
		Mean in Original Scale	3.903
		SD in Original Scale	2.273
		95% Percentile Bootstrap UCL	4.755
		95% BCA Bootstrap UCL	5.01

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	5.236	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.248		
nu star	62.83		
A-D Test Statistic	0.536	**Nonparametric Statistics**	
5% A-D Critical Value	0.698	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.698	Mean	5.379
5% K-S Critical Value	0.332	SD	1.802
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.528
		95% KM (t) UCL	6.291
Assuming Gamma Distribution		95% KM (z) UCL	6.246
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.159
Minimum	4.51	95% KM (bootstrap t) UCL	7.337
Maximum	11.4	95% KM (BCA) UCL	6.993
Mean	6.769	95% KM (Percentile Bootstrap) UCL	6.606
Median	6.553	95% KM (Chebyshev) UCL	7.678
SD	1.353	97.5% KM (Chebyshev) UCL	8.674
k star	25.68	99% KM (Chebyshev) UCL	10.63
Theta star	0.264		
Nu star	1027	**Potential UCLs to Use**	
AppChi2	953.9	95% KM (t) UCL	6.291
95% Gamma Approximate UCL	7.29		
95% Adjusted Gamma UCL	7.333		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (1,1-dichloroethylene)

General Statistics

Number of Valid Observations	11	Number of Distinct Observations	11

Raw Statistics

Minimum	0.00396
Maximum	0.00609
Mean	0.00487
Median	0.0048
SD	0.000626
Coefficient of Variation	0.128
Skewness	0.421

Log-transformed Statistics

Minimum of Log Data	-5.532
Maximum of Log Data	-5.101
Mean of log Data	-5.331
SD of log Data	0.127

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.978
Shapiro Wilk Critical Value	0.85

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.986
Shapiro Wilk Critical Value	0.85

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	0.00522

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	0.00521
95% Modified-t UCL	0.00522

Assuming Lognormal Distribution

95% H-UCL	0.00525
95% Chebyshev (MVUE) UCL	0.00569
97.5% Chebyshev (MVUE) UCL	0.00604
99% Chebyshev (MVUE) UCL	0.00674

Gamma Distribution Test

k star (bias corrected)	49.23
Theta Star	9.9E-05
nu star	1083
Approximate Chi Square Value (.05)	1008
Adjusted Level of Significance	0.0278
Adjusted Chi Square Value	995.7
Anderson-Darling Test Statistic	0.14
Anderson-Darling 5% Critical Value	0.727
Kolmogorov-Smirnov Test Statistic	0.106
Kolmogorov-Smirnov 5% Critical Value	0.255

Data appear Gamma Distributed at 5% Significance Level

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	0.00518
95% Jackknife UCL	0.00522
95% Standard Bootstrap UCL	0.00517
95% Bootstrap-t UCL	0.00527
95% Hall's Bootstrap UCL	0.00526
95% Percentile Bootstrap UCL	0.00518
95% BCA Bootstrap UCL	0.00521
95% Chebyshev(Mean, Sd) UCL	0.0057
97.5% Chebyshev(Mean, Sd) UCL	0.00605
99% Chebyshev(Mean, Sd) UCL	0.00675

Assuming Gamma Distribution

95% Approximate Gamma UCL	0.00524
95% Adjusted Gamma UCL	0.0053

Potential UCL to Use

Use 95% Student's-t UCL 0.00522

Result (barium)

General Statistics

Number of Valid Data	11	Number of Detected Data	7
Number of Distinct Detected Data	5	Number of Non-Detect Data	4
		Percent Non-Detects	36.36%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.007	Minimum Detected	-4.962
Maximum Detected	0.013	Maximum Detected	-4.343
Mean of Detected	0.0101	Mean of Detected	-4.61
SD of Detected	0.00204	SD of Detected	0.213
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	11
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.923
5% Shapiro Wilk Critical Value	0.803

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0124
SD	0.0128
95% DL/2 (t) UCL	0.0194
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-4.651
SD	0.654
95% H-Stat (DL/2) UCL	0.0296
Log ROS Method	
Mean in Log Scale	-4.69
SD in Log Scale	0.211
Mean in Original Scale	0.00937
SD in Original Scale	0.00198
95% Percentile Bootstrap UCL	0.0104
95% BCA Bootstrap UCL	0.0103

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	15.48
Theta Star	0.000655
nu star	216.7
A-D Test Statistic	0.462
5% A-D Critical Value	0.707
K-S Test Statistic	0.707
5% K-S Critical Value	0.311

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.007
Maximum	0.013
Mean	0.0101
Median	0.0105
SD	0.00171
k star	26.11
Theta star	0.000385
Nu star	574.5
AppChi2	519.9
95% Gamma Approximate UCL	0.0111
95% Adjusted Gamma UCL	0.0113

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00935
SD	0.00201
SE of Mean	0.000701
95% KM (t) UCL	0.0106
95% KM (z) UCL	0.0105
95% KM (jackknife) UCL	0.0107
95% KM (bootstrap t) UCL	0.0107
95% KM (BCA) UCL	0.011
95% KM (Percentile Bootstrap) UCL	0.0109
95% KM (Chebyshev) UCL	0.0124
97.5% KM (Chebyshev) UCL	0.0137
99% KM (Chebyshev) UCL	0.0163

Potential UCLs to Use

95% KM (t) UCL	0.0106
95% KM (Percentile Bootstrap) UCL	0.0109

Result (bromide)

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		Log-transformed Statistics	
Minimum	1.81	Minimum of Log Data	0.593
Maximum	10.4	Maximum of Log Data	2.342
Mean	4.346	Mean of log Data	1.372
Median	3.9	SD of log Data	0.443
SD	2.374		
Coefficient of Variation	0.546		
Skewness	2.454		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.627
Shapiro Wilk Critical Value	0.829

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	5.817

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	6.339
95% Modified-t UCL	5.925

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.768
Shapiro Wilk Critical Value	0.829

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	6.118
95% Chebyshev (MVUE) UCL	7.099
97.5% Chebyshev (MVUE) UCL	8.31
99% Chebyshev (MVUE) UCL	10.69

Gamma Distribution Test

k star (bias corrected)	3.622
Theta Star	1.2
nu star	65.2
Approximate Chi Square Value (.05)	47.62
Adjusted Level of Significance	0.0231
Adjusted Chi Square Value	44.47
Anderson-Darling Test Statistic	1.321
Anderson-Darling 5% Critical Value	0.723
Kolmogorov-Smirnov Test Statistic	0.395
Kolmogorov-Smirnov 5% Critical Value	0.28

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	5.95
95% Adjusted Gamma UCL	6.372

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	5.647
95% Jackknife UCL	5.817
95% Standard Bootstrap UCL	5.54
95% Bootstrap-t UCL	10.67
95% Hall's Bootstrap UCL	12.83
95% Percentile Bootstrap UCL	5.713
95% BCA Bootstrap UCL	6.28
95% Chebyshev(Mean, Sd) UCL	7.795
97.5% Chebyshev(Mean, Sd) UCL	9.288
99% Chebyshev(Mean, Sd) UCL	12.22

Potential UCL to Use

Use 95% Student's-t UCL	5.817
or 95% Modified-t UCL	5.925

Result (chloride (cl))

General Statistics

Number of Valid Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-transformed Statistics	
Minimum	3100	Minimum of Log Data	8.039
Maximum	6660	Maximum of Log Data	8.804
Mean	5505	Mean of log Data	8.588
Median	5870	SD of log Data	0.254
SD	1168		
Coefficient of Variation	0.212		
Skewness	-1.474		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.771	Shapiro Wilk Test Statistic	0.717
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	6144	95% H-UCL	6455
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7376
95% Adjusted-CLT UCL	5918	97.5% Chebyshev (MVUE) UCL	8177
95% Modified-t UCL	6118	99% Chebyshev (MVUE) UCL	9752

Gamma Distribution Test		Data Distribution
k star (bias corrected)	14.19	Data do not follow a Discernable Distribution (0.05)
Theta Star	388	
nu star	312.2	
Approximate Chi Square Value (.05)	272.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0278	95% CLT UCL 6085
Adjusted Chi Square Value	266.2	95% Jackknife UCL 6144
		95% Standard Bootstrap UCL 6060
Anderson-Darling Test Statistic	1.433	95% Bootstrap-t UCL 6005
Anderson-Darling 5% Critical Value	0.729	95% Hall's Bootstrap UCL 5932
Kolmogorov-Smirnov Test Statistic	0.345	95% Percentile Bootstrap UCL 6027
Kolmogorov-Smirnov 5% Critical Value	0.255	95% BCA Bootstrap UCL 5945
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7041
		97.5% Chebyshev(Mean, Sd) UCL 7705
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 9010
95% Approximate Gamma UCL	6313	
95% Adjusted Gamma UCL	6457	

Potential UCL to Use	
Use 95% Student's-t UCL	6144
or 95% Modified-t UCL	6118

Result (chloroform)

General Statistics

Number of Valid Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-transformed Statistics	
Minimum	0.00135	Minimum of Log Data	-6.608
Maximum	0.00361	Maximum of Log Data	-5.624
Mean	0.00184	Mean of log Data	-6.336
Median	0.00163	SD of log Data	0.269
SD	0.000626		
Coefficient of Variation	0.34		
Skewness	2.637		

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.671
Shapiro Wilk Critical Value	0.85

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	0.00218

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	0.00231
95% Modified-t UCL	0.00221

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.794
Shapiro Wilk Critical Value	0.85

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	0.00216
95% Chebyshev (MVUE) UCL	0.00248
97.5% Chebyshev (MVUE) UCL	0.00276
99% Chebyshev (MVUE) UCL	0.00332

Gamma Distribution Test

k star (bias corrected)	9.703
Theta Star	0.00019
nu star	213.5
Approximate Chi Square Value (.05)	180.7
Adjusted Level of Significance	0.0278
Adjusted Chi Square Value	175.7
Anderson-Darling Test Statistic	1.042
Anderson-Darling 5% Critical Value	0.729
Kolmogorov-Smirnov Test Statistic	0.263
Kolmogorov-Smirnov 5% Critical Value	0.255

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	0.00218
95% Adjusted Gamma UCL	0.00224

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	0.00215
95% Jackknife UCL	0.00218
95% Standard Bootstrap UCL	0.00214
95% Bootstrap-t UCL	0.00276
95% Hall's Bootstrap UCL	0.0035
95% Percentile Bootstrap UCL	0.00217
95% BCA Bootstrap UCL	0.0023
95% Chebyshev(Mean, Sd) UCL	0.00266
97.5% Chebyshev(Mean, Sd) UCL	0.00302
99% Chebyshev(Mean, Sd) UCL	0.00372

Potential UCL to Use

Use 95% Student's-t UCL	0.00218
or 95% Modified-t UCL	0.00221

Result (chromium)

General Statistics

Number of Valid Observations	11	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	0.58	Minimum of Log Data	-0.545
Maximum	1.54	Maximum of Log Data	0.432
Mean	0.894	Mean of log Data	-0.159
Median	0.812	SD of log Data	0.313
SD	0.296		
Coefficient of Variation	0.331		
Skewness	1.01		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.897	Shapiro Wilk Test Statistic	0.936
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1.055	95% H-UCL	1.089
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.263
95% Adjusted-CLT UCL	1.07	97.5% Chebyshev (MVUE) UCL	1.423
95% Modified-t UCL	1.06	99% Chebyshev (MVUE) UCL	1.738

Gamma Distribution Test		Data Distribution
k star (bias corrected)	8.068	Data appear Normal at 5% Significance Level
Theta Star	0.111	
nu star	177.5	
Approximate Chi Square Value (.05)	147.7	Nonparametric Statistics
Adjusted Level of Significance	0.0278	95% CLT UCL 1.04
Adjusted Chi Square Value	143.2	95% Jackknife UCL 1.055
		95% Standard Bootstrap UCL 1.038
Anderson-Darling Test Statistic	0.377	95% Bootstrap-t UCL 1.093
Anderson-Darling 5% Critical Value	0.729	95% Hall's Bootstrap UCL 1.083
Kolmogorov-Smirnov Test Statistic	0.202	95% Percentile Bootstrap UCL 1.041
Kolmogorov-Smirnov 5% Critical Value	0.255	95% BCA Bootstrap UCL 1.065
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.283
		97.5% Chebyshev(Mean, Sd) UCL 1.451
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.782
95% Approximate Gamma UCL	1.074	
95% Adjusted Gamma UCL	1.107	

Potential UCL to Use	Use 95% Student's-t UCL 1.055

Result (copper)

General Statistics

Number of Valid Data	9	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	4
		Percent Non-Detects	44.44%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.041	Minimum Detected	-3.194
Maximum Detected	0.099	Maximum Detected	-2.313
Mean of Detected	0.0686	Mean of Detected	-2.724
SD of Detected	0.0223	SD of Detected	0.337
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.989	Shapiro Wilk Test Statistic	0.99
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0392	Mean	-4.176
SD	0.0382	SD	1.739
95% DL/2 (t) UCL	0.0629	95% H-Stat (DL/2) UCL	0.186
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0686	Mean in Log Scale	-3.168
SD	0.0199	SD in Log Scale	0.605
95% MLE (t) UCL	0.081	Mean in Original Scale	0.0492
95% MLE (Tiku) UCL	0.0852	SD in Original Scale	0.0282
		95% Percentile Bootstrap UCL	0.0643
		95% BCA Bootstrap UCL	0.0643

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	4.726	Data appear Normal at 5% Significance Level	
Theta Star	0.0145		
nu star	47.26		
A-D Test Statistic	0.17	**Nonparametric Statistics**	
5% A-D Critical Value	0.679	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.679	Mean	0.0563
5% K-S Critical Value	0.358	SD	0.0202
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00754
		95% KM (t) UCL	0.0703
Assuming Gamma Distribution		95% KM (z) UCL	0.0687
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0703
Minimum	0.039	95% KM (bootstrap t) UCL	0.0701
Maximum	0.099	95% KM (BCA) UCL	0.083
Mean	0.0654	95% KM (Percentile Bootstrap) UCL	0.0746
Median	0.065	95% KM (Chebyshev) UCL	0.0892
SD	0.0195	97.5% KM (Chebyshev) UCL	0.103
k star	8.226	99% KM (Chebyshev) UCL	0.131
Theta star	0.00795		
Nu star	148.1	**Potential UCLs to Use**	
AppChi2	120.9	95% KM (t) UCL	0.0703
95% Gamma Approximate UCL	0.0801	95% KM (Percentile Bootstrap) UCL	0.0746
95% Adjusted Gamma UCL	0.0837		

Note: DL/2 is not a recommended method.

Result (fluoride)

General Statistics

Number of Valid Data	11	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	3
		Percent Non-Detects	27.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.17	Minimum Detected	0.775
Maximum Detected	4.14	Maximum Detected	1.421
Mean of Detected	3.518	Mean of Detected	1.234
SD of Detected	0.761	SD of Detected	0.243
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.789	Shapiro Wilk Test Statistic	0.779
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.585	Mean	0.269
SD	1.719	SD	1.664
95% DL/2 (t) UCL	3.525	95% H-Stat (DL/2) UCL	31.25
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.518	Mean in Log Scale	1.091
SD	0.712	SD in Log Scale	0.322
95% MLE (t) UCL	3.906	Mean in Original Scale	3.116
95% MLE (Tiku) UCL	3.974	SD in Original Scale	0.943
		95% Percentile Bootstrap UCL	3.555
		95% BCA Bootstrap UCL	3.566

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	13.29	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.265		
nu star	212.6		
A-D Test Statistic	0.914	**Nonparametric Statistics**	
5% A-D Critical Value	0.716	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.716	Mean	3.15
5% K-S Critical Value	0.294	SD	0.854
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.275
		95% KM (t) UCL	3.649
Assuming Gamma Distribution		95% KM (z) UCL	3.603
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.64
Minimum	2.17	95% KM (bootstrap t) UCL	3.614
Maximum	4.14	95% KM (BCA) UCL	3.989
Mean	3.297	95% KM (Percentile Bootstrap) UCL	3.714
Median	3.105	95% KM (Chebyshev) UCL	4.349
SD	0.765	97.5% KM (Chebyshev) UCL	4.868
k star	14.06	99% KM (Chebyshev) UCL	5.888
Theta star	0.234		
Nu star	309.4	**Potential UCLs to Use**	
AppChi2	269.7	95% KM (BCA) UCL	3.989
95% Gamma Approximate UCL	3.783		
95% Adjusted Gamma UCL	3.87		

Note: DL/2 is not a recommended method.

Result (nitrate)

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	7

Raw Statistics		Log-transformed Statistics	
Minimum	95.3	Minimum of Log Data	4.557
Maximum	205	Maximum of Log Data	5.323
Mean	147.1	Mean of log Data	4.961
Median	151	SD of log Data	0.267
SD	36.43		
Coefficient of Variation	0.248		
Skewness	-0.251		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.818

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	171.5

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	167
95% Modified-t UCL	171.3

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.856
Shapiro Wilk Critical Value	0.818

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	181.4
95% Chebyshev (MVUE) UCL	208.1
97.5% Chebyshev (MVUE) UCL	234.4
99% Chebyshev (MVUE) UCL	286.1

Gamma Distribution Test

k star (bias corrected)	10.76
Theta Star	13.67
nu star	172.2
Approximate Chi Square Value (.05)	142.8
Adjusted Level of Significance	0.0195
Adjusted Chi Square Value	136.1
Anderson-Darling Test Statistic	0.618
Anderson-Darling 5% Critical Value	0.716
Kolmogorov-Smirnov Test Statistic	0.292
Kolmogorov-Smirnov 5% Critical Value	0.294

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	177.3
95% Adjusted Gamma UCL	186.1

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	168.3
95% Jackknife UCL	171.5
95% Standard Bootstrap UCL	166.8
95% Bootstrap-t UCL	169.2
95% Hall's Bootstrap UCL	167.6
95% Percentile Bootstrap UCL	167.3
95% BCA Bootstrap UCL	165.4
95% Chebyshev(Mean, Sd) UCL	203.2
97.5% Chebyshev(Mean, Sd) UCL	227.5
99% Chebyshev(Mean, Sd) UCL	275.2

Potential UCL to Use

Use 95% Student's-t UCL 171.5

Result (selenium)

General Statistics

Number of Valid Data	11	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	3
		Percent Non-Detects	27.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.325	Minimum Detected	-1.124
Maximum Detected	0.671	Maximum Detected	-0.399
Mean of Detected	0.526	Mean of Detected	-0.661
SD of Detected	0.1	SD of Detected	0.214
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	3
Number treated as Detected	8
Single DL Non-Detect Percentage	27.27%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.923	Shapiro Wilk Test Statistic	0.86
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.386	Mean	-1.78
SD	0.254	SD	1.968
95% DL/2 (t) UCL	0.525	95% H-Stat (DL/2) UCL	10.03
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.526	Mean in Log Scale	-0.789
SD	0.0939	SD in Log Scale	0.284
95% MLE (t) UCL	0.577	Mean in Original Scale	0.47
95% MLE (Tiku) UCL	0.586	SD in Original Scale	0.127
		95% Percentile Bootstrap UCL	0.53
		95% BCA Bootstrap UCL	0.532

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	17.15	Data appear Normal at 5% Significance Level
Theta Star	0.0307	
nu star	274.4	
A-D Test Statistic	0.495	
5% A-D Critical Value	0.716	
K-S Test Statistic	0.716	
5% K-S Critical Value	0.294	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.325	Mean	0.471
Maximum	0.671	SD	0.12
Mean	0.498	SE of Mean	0.0387
Median	0.501	95% KM (t) UCL	0.541
SD	0.0976	95% KM (z) UCL	0.535
k star	19.97	95% KM (jackknife) UCL	0.551
Theta star	0.0249	95% KM (bootstrap t) UCL	0.536
Nu star	439.4	95% KM (BCA) UCL	0.569
AppChi2	391.8	95% KM (Percentile Bootstrap) UCL	0.556
95% Gamma Approximate UCL	0.559	95% KM (Chebyshev) UCL	0.64
95% Adjusted Gamma UCL	0.569	97.5% KM (Chebyshev) UCL	0.713
		99% KM (Chebyshev) UCL	0.856
		Potential UCLs to Use	
		95% KM (t) UCL	0.541
		95% KM (Percentile Bootstrap) UCL	0.556

Note: DL/2 is not a recommended method.

Result (sulfate)

General Statistics

Number of Valid Observations	11	Number of Distinct Observations	10

Raw Statistics		Log-transformed Statistics	
Minimum	8060	Minimum of Log Data	8.995
Maximum	17600	Maximum of Log Data	9.776
Mean	13242	Mean of log Data	9.475
Median	13100	SD of log Data	0.194
SD	2334		
Coefficient of Variation	0.176		
Skewness	-0.547		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.917	Shapiro Wilk Test Statistic	0.862
Shapiro Wilk Critical Value	0.85	Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	14517	95% H-UCL	14877
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16641
95% Adjusted-CLT UCL	14275	97.5% Chebyshev (MVUE) UCL	18106
95% Modified-t UCL	14498	99% Chebyshev (MVUE) UCL	20983

Gamma Distribution Test		Data Distribution
k star (bias corrected)	23.09	Data appear Normal at 5% Significance Level
Theta Star	573.5	
nu star	507.9	
Approximate Chi Square Value (.05)	456.7	
Adjusted Level of Significance	0.0278	
Adjusted Chi Square Value	448.7	
Anderson-Darling Test Statistic	0.629	
Anderson-Darling 5% Critical Value	0.729	
Kolmogorov-Smirnov Test Statistic	0.232	
Kolmogorov-Smirnov 5% Critical Value	0.255	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	14399
95% Jackknife UCL	14517
95% Standard Bootstrap UCL	14328
95% Bootstrap-t UCL	14440
95% Hall's Bootstrap UCL	14438
95% Percentile Bootstrap UCL	14291
95% BCA Bootstrap UCL	14236
95% Chebyshev(Mean, Sd) UCL	16309
97.5% Chebyshev(Mean, Sd) UCL	17637
99% Chebyshev(Mean, Sd) UCL	20244

Assuming Gamma Distribution	
95% Approximate Gamma UCL	14728
95% Adjusted Gamma UCL	14989

Potential UCL to Use	Use 95% Student's-t UCL	14517

Result (trichloroethylene)

General Statistics

Number of Valid Observations	11	Number of Distinct Observations	11

Raw Statistics		Log-transformed Statistics	
Minimum	0.00495	Minimum of Log Data	-5.308
Maximum	0.00906	Maximum of Log Data	-4.704
Mean	0.00647	Mean of log Data	-5.053
Median	0.00646	SD of log Data	0.166
SD	0.00111		
Coefficient of Variation	0.172		
Skewness	0.995		

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.909
Shapiro Wilk Critical Value	0.85

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	0.00708

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	0.00713
95% Modified-t UCL	0.0071

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.941
Shapiro Wilk Critical Value	0.85

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	0.00713
95% Chebyshev (MVUE) UCL	0.00789
97.5% Chebyshev (MVUE) UCL	0.0085
99% Chebyshev (MVUE) UCL	0.0097

Gamma Distribution Test

k star (bias corrected)	28.56
Theta Star	0.000227
nu star	628.4
Approximate Chi Square Value (.05)	571.2
Adjusted Level of Significance	0.0278
Adjusted Chi Square Value	562.3
Anderson-Darling Test Statistic	0.372
Anderson-Darling 5% Critical Value	0.729
Kolmogorov-Smirnov Test Statistic	0.166
Kolmogorov-Smirnov 5% Critical Value	0.255

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	0.00712
95% Adjusted Gamma UCL	0.00723

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	0.00702
95% Jackknife UCL	0.00708
95% Standard Bootstrap UCL	0.00698
95% Bootstrap-t UCL	0.00721
95% Hall's Bootstrap UCL	0.00751
95% Percentile Bootstrap UCL	0.00702
95% BCA Bootstrap UCL	0.00707
95% Chebyshev(Mean, Sd) UCL	0.00793
97.5% Chebyshev(Mean, Sd) UCL	0.00857
99% Chebyshev(Mean, Sd) UCL	0.00981

Potential UCL to Use

Use 95% Student's-t UCL 0.00708

Result (vanadium (fume or dust))

General Statistics

Number of Valid Data	9	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	11.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.015	Minimum Detected	-4.2
Maximum Detected	0.054	Maximum Detected	-2.919
Mean of Detected	0.0311	Mean of Detected	-3.53
SD of Detected	0.0117	SD of Detected	0.375
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.909	Shapiro Wilk Test Statistic	0.944
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0279	Mean	-3.804
SD	0.0145	SD	0.892
95% DL/2 (t) UCL	0.037	95% H-Stat (DL/2) UCL	0.0555
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0275	Mean in Log Scale	-3.63
SD	0.0146	SD in Log Scale	0.461
95% MLE (t) UCL	0.0366	Mean in Original Scale	0.029
95% MLE (Tiku) UCL	0.0369	SD in Original Scale	0.0127
		95% Percentile Bootstrap UCL	0.0356
		95% BCA Bootstrap UCL	0.0363

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.34	Data appear Normal at 5% Significance Level
Theta Star	0.00583	
nu star	85.44	
A-D Test Statistic	0.369	
5% A-D Critical Value	0.716	
K-S Test Statistic	0.716	
5% K-S Critical Value	0.295	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0115	Mean	0.0293
Maximum	0.054	SD	0.0115
Mean	0.0289	SE of Mean	0.0041
Median	0.027	95% KM (t) UCL	0.037
SD	0.0128	95% KM (z) UCL	0.0361
k star	3.816	95% KM (jackknife) UCL	0.0369
Theta star	0.00758	95% KM (bootstrap t) UCL	0.0399
Nu star	68.7	95% KM (BCA) UCL	0.0371
AppChi2	50.62	95% KM (Percentile Bootstrap) UCL	0.0362
95% Gamma Approximate UCL	0.0393	95% KM (Chebyshev) UCL	0.0472
95% Adjusted Gamma UCL	0.042	97.5% KM (Chebyshev) UCL	0.055
		99% KM (Chebyshev) UCL	0.0702
		Potential UCLs to Use	
		95% KM (t) UCL	0.037
		95% KM (Percentile Bootstrap) UCL	0.0362

Note: DL/2 is not a recommended method.

Attachment C – ProUCL Output for SWMU 141

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (arsenic)

General Statistics

Number of Valid Data	11	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	4
		Percent Non-Detects	36.36%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.54	Minimum Detected	-0.616
Maximum Detected	8.56	Maximum Detected	2.147
Mean of Detected	3.957	Mean of Detected	1.147
SD of Detected	2.42	SD of Detected	0.852
Minimum Non-Detect	2.96	Minimum Non-Detect	1.085
Maximum Non-Detect	3.12	Maximum Non-Detect	1.138

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	6
Number treated as Detected	5
Single DL Non-Detect Percentage	54.55%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.898
5% Shapiro Wilk Critical Value	0.803

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.815
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	3.07
SD	2.243
95% DL/2 (t) UCL	4.296
Maximum Likelihood Estimate(MLE) Method	
Mean	2.598
SD	2.752
95% MLE (t) UCL	4.102
95% MLE (Tiku) UCL	4.571

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	0.882
SD	0.756
95% H-Stat (DL/2) UCL	5.078
Log ROS Method	
Mean in Log Scale	0.793
SD in Log Scale	0.832
Mean in Original Scale	2.958
SD in Original Scale	2.336
95% Percentile Bootstrap UCL	4.154
95% BCA Bootstrap UCL	4.323

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.434
Theta Star	2.759
nu star	20.08
A-D Test Statistic	0.535
5% A-D Critical Value	0.714
K-S Test Statistic	0.714
5% K-S Critical Value	0.315

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.54
Maximum	8.56
Mean	3.728
Median	3.51
SD	1.988
k star	2.393
Theta star	1.558
Nu star	52.65
AppChi2	36.98
95% Gamma Approximate UCL	5.308
95% Adjusted Gamma UCL	5.632

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	3.147
SD	2.204
SE of Mean	0.824
95% KM (t) UCL	4.641
95% KM (z) UCL	4.503
95% KM (jackknife) UCL	5.006
95% KM (bootstrap t) UCL	4.904
95% KM (BCA) UCL	4.705
95% KM (Percentile Bootstrap) UCL	4.595
95% KM (Chebyshev) UCL	6.739
97.5% KM (Chebyshev) UCL	8.294
99% KM (Chebyshev) UCL	11.35

Potential UCLs to Use

95% KM (t) UCL	4.641
95% KM (Percentile Bootstrap) UCL	4.595

Result (barium)

General Statistics

Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	9	Number of Non-Detect Data	1
		Percent Non-Detects	9.09%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	47.4	Minimum Detected	3.859
Maximum Detected	112	Maximum Detected	4.718
Mean of Detected	86.15	Mean of Detected	4.429
SD of Detected	19.76	SD of Detected	0.257
Minimum Non-Detect	92	Minimum Non-Detect	4.522
Maximum Non-Detect	92	Maximum Non-Detect	4.522

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.941	Shapiro Wilk Test Statistic	0.891
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	82.5	Mean	4.374
SD	22.32	SD	0.304
95% DL/2 (t) UCL	94.7	95% H-Stat (DL/2) UCL	115.5
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	90.85	Mean in Log Scale	4.412
SD	12.54	SD in Log Scale	0.25
95% MLE (t) UCL	97.71	Mean in Original Scale	84.66
95% MLE (Tiku) UCL	99.75	SD in Original Scale	19.39
		95% Percentile Bootstrap UCL	93.52
		95% BCA Bootstrap UCL	93.7

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	12.97	Data appear Normal at 5% Significance Level
Theta Star	6.643	
nu star	259.4	
A-D Test Statistic	0.407	
5% A-D Critical Value	0.725	
K-S Test Statistic	0.725	
5% K-S Critical Value	0.266	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	47.4
Maximum	112
Mean	85.26
Median	85.4
SD	18.98
k star	14.46
Theta star	5.896
Nu star	318.1
AppChi2	277.8
95% Gamma Approximate UCL	97.64
95% Adjusted Gamma UCL	99.85

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	84.71
SD	18.82
SE of Mean	6.124
95% KM (t) UCL	95.81
95% KM (z) UCL	94.78
95% KM (jackknife) UCL	95.88
95% KM (bootstrap t) UCL	94.82
95% KM (BCA) UCL	94.33
95% KM (Percentile Bootstrap) UCL	94.09
95% KM (Chebyshev) UCL	111.4
97.5% KM (Chebyshev) UCL	123
99% KM (Chebyshev) UCL	145.6

Potential UCLs to Use	
95% KM (t) UCL	95.81
95% KM (Percentile Bootstrap) UCL	94.09

Result (lead)

General Statistics

Number of Valid Data	11	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	2
		Percent Non-Detects	18.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.65	Minimum Detected	1.295
Maximum Detected	8.17	Maximum Detected	2.1
Mean of Detected	5.608	Mean of Detected	1.692
SD of Detected	1.487	SD of Detected	0.273
Minimum Non-Detect	2.8	Minimum Non-Detect	1.03
Maximum Non-Detect	23	Maximum Non-Detect	3.135

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	11
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.953	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.761	Mean	1.637
SD	2.643	SD	0.544
95% DL/2 (t) UCL	7.205	95% H-Stat (DL/2) UCL	12.28
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.626
		SD in Log Scale	0.316
		Mean in Original Scale	5.306
		SD in Original Scale	1.578
		95% Percentile Bootstrap UCL	6.071
		95% BCA Bootstrap UCL	6.071

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	10.49	Data appear Normal at 5% Significance Level	
Theta Star	0.535		
nu star	188.8		
A-D Test Statistic	0.293	**Nonparametric Statistics**	
5% A-D Critical Value	0.721	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.721	Mean	5.412
5% K-S Critical Value	0.279	SD	1.454
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.488
		95% KM (t) UCL	6.296
Assuming Gamma Distribution		95% KM (z) UCL	6.214
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.29
Minimum	2.794	95% KM (bootstrap t) UCL	6.304
Maximum	8.17	95% KM (BCA) UCL	6.215
Mean	5.394	95% KM (Percentile Bootstrap) UCL	6.202
Median	6	95% KM (Chebyshev) UCL	7.538
SD	1.591	97.5% KM (Chebyshev) UCL	8.458
k star	8.494	99% KM (Chebyshev) UCL	10.26
Theta star	0.635		
Nu star	186.9	**Potential UCLs to Use**	
AppChi2	156.2	95% KM (t) UCL	6.296
95% Gamma Approximate UCL	6.451	95% KM (Percentile Bootstrap) UCL	6.202
95% Adjusted Gamma UCL	6.645		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (acetone)

General Statistics

Number of Valid Data	46	Number of Detected Data	6
Number of Distinct Detected Data	5	Number of Non-Detect Data	40
		Percent Non-Detects	86.96%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0374	Minimum Detected	-3.286
Maximum Detected	0.72	Maximum Detected	-0.329
Mean of Detected	0.288	Mean of Detected	-1.596
SD of Detected	0.245	SD of Detected	1.003
Minimum Non-Detect	0.0224	Minimum Non-Detect	-3.799
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	41
Number treated as Detected	5
Single DL Non-Detect Percentage	89.13%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.864
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0578
SD	0.123
95% DL/2 (t) UCL	0.0882
Maximum Likelihood Estimate(MLE) Method	
Mean	0.417
SD	0.212
95% MLE (t) UCL	0.47
95% MLE (Tiku) UCL	0.572

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.923
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-3.659
SD	1.047
95% H-Stat (DL/2) UCL	0.0504
Log ROS Method	
Mean in Log Scale	-5.844
SD in Log Scale	2.033
Mean in Original Scale	0.0402
SD in Original Scale	0.127
95% Percentile Bootstrap UCL	0.0728
95% BCA Bootstrap UCL	0.0887

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.897
Theta Star	0.321
nu star	10.76
A-D Test Statistic	0.328
5% A-D Critical Value	0.707
K-S Test Statistic	0.707
5% K-S Critical Value	0.337

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0374
Maximum	0.72
Mean	0.291
Median	0.287
SD	0.111
k star	5.89
Theta star	0.0493
Nu star	541.9
AppChi2	488.9
95% Gamma Approximate UCL	0.322
95% Adjusted Gamma UCL	0.323

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0701
SD	0.117
SE of Mean	0.0189
95% KM (t) UCL	0.102
95% KM (z) UCL	0.101
95% KM (jackknife) UCL	0.152
95% KM (bootstrap t) UCL	0.118
95% KM (BCA) UCL	0.228
95% KM (Percentile Bootstrap) UCL	0.218
95% KM (Chebyshev) UCL	0.152
97.5% KM (Chebyshev) UCL	0.188
99% KM (Chebyshev) UCL	0.258

Potential UCLs to Use

95% KM (t) UCL	0.102
95% KM (Percentile Bootstrap) UCL	0.218

Result (arsenic)

General Statistics

Number of Valid Data	45	Number of Detected Data	23
Number of Distinct Detected Data	21	Number of Non-Detect Data	22
		Percent Non-Detects	48.89%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.54	Minimum Detected	-0.616
Maximum Detected	9.64	Maximum Detected	2.266
Mean of Detected	3.005	Mean of Detected	0.803
SD of Detected	2.377	SD of Detected	0.82
Minimum Non-Detect	0.42	Minimum Non-Detect	-0.868
Maximum Non-Detect	3.47	Maximum Non-Detect	1.244

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	38
Number treated as Detected	7
Single DL Non-Detect Percentage	84.44%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.839	Shapiro Wilk Test Statistic	0.951
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.181	Mean	0.439
SD	1.929	SD	0.893
95% DL/2 (t) UCL	2.664	95% H-Stat (DL/2) UCL	2.783
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.261
		SD in Log Scale	0.876
		Mean in Original Scale	1.935
		SD in Original Scale	2.026
		95% Percentile Bootstrap UCL	2.446
		95% BCA Bootstrap UCL	2.566

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.622	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.852	
nu star	74.63	
A-D Test Statistic	0.421	
5% A-D Critical Value	0.757	
K-S Test Statistic	0.757	
5% K-S Critical Value	0.184	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.54	Mean	2.057
Maximum	9.64	SD	1.997
Mean	2.869	SE of Mean	0.321
Median	3.153	95% KM (t) UCL	2.596
SD	1.801	95% KM (z) UCL	2.585
k star	2.63	95% KM (jackknife) UCL	2.585
Theta star	1.091	95% KM (bootstrap t) UCL	2.704
Nu star	236.7	95% KM (BCA) UCL	2.673
AppChi2	202.1	95% KM (Percentile Bootstrap) UCL	2.59
95% Gamma Approximate UCL	3.361	95% KM (Chebyshev) UCL	3.455
95% Adjusted Gamma UCL	3.378	97.5% KM (Chebyshev) UCL	4.06
		99% KM (Chebyshev) UCL	5.249
		Potential UCLs to Use	
		95% KM (t) UCL	2.596

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Data	45	Number of Detected Data	33
Number of Distinct Detected Data	31	Number of Non-Detect Data	12
		Percent Non-Detects	26.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	36	Minimum Detected	3.584
Maximum Detected	179	Maximum Detected	5.187
Mean of Detected	86.06	Mean of Detected	4.399
SD of Detected	28.94	SD of Detected	0.349
Minimum Non-Detect	88	Minimum Non-Detect	4.477
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	40
Number treated as Detected	5
Single DL Non-Detect Percentage	88.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.941	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.931	5% Shapiro Wilk Critical Value	0.931
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	76.28	Mean	4.265
SD	29.7	SD	0.375
95% DL/2 (t) UCL	83.72	95% H-Stat (DL/2) UCL	98.39
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	47.82	Mean in Log Scale	4.354
SD	50.46	SD in Log Scale	0.314
95% MLE (t) UCL	60.46	Mean in Original Scale	81.62
95% MLE (Tiku) UCL	97.14	SD in Original Scale	26.23
		95% Percentile Bootstrap UCL	88.22
		95% BCA Bootstrap UCL	88.59

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	8.261	Data appear Normal at 5% Significance Level
Theta Star	10.42	
nu star	545.2	
A-D Test Statistic	0.535	
5% A-D Critical Value	0.747	
K-S Test Statistic	0.747	
5% K-S Critical Value	0.153	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	36	Mean	82.09
Maximum	179	SD	26.97
Mean	85.96	SE of Mean	4.408
Median	87.54	95% KM (t) UCL	89.5
SD	25.38	95% KM (z) UCL	89.34
k star	10.87	95% KM (jackknife) UCL	89.52
Theta star	7.906	95% KM (bootstrap t) UCL	89.47
Nu star	978.5	95% KM (BCA) UCL	89.34
AppChi2	906.9	95% KM (Percentile Bootstrap) UCL	89.42
95% Gamma Approximate UCL	92.74	95% KM (Chebyshev) UCL	101.3
95% Adjusted Gamma UCL	92.98	97.5% KM (Chebyshev) UCL	109.6
		99% KM (Chebyshev) UCL	126
		Potential UCLs to Use	
		95% KM (t) UCL	89.5
		95% KM (Percentile Bootstrap) UCL	89.42

Note: DL/2 is not a recommended method.

Result (lead)

General Statistics

Number of Valid Data	45	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	30
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.65	Minimum Detected	1.295
Maximum Detected	14.7	Maximum Detected	2.688
Mean of Detected	5.989	Mean of Detected	1.72
SD of Detected	2.743	SD of Detected	0.361
Minimum Non-Detect	1.28	Minimum Non-Detect	0.247
Maximum Non-Detect	27	Maximum Non-Detect	3.296

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	45
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.726	Shapiro Wilk Test Statistic	0.89
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.399	Mean	1.54
SD	4.549	SD	0.867
95% DL/2 (t) UCL	7.538	95% H-Stat (DL/2) UCL	12.52
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.275
		SD in Log Scale	0.454
		Mean in Original Scale	4.004
		SD in Original Scale	2.265
		95% Percentile Bootstrap UCL	4.602
		95% BCA Bootstrap UCL	4.722

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.892	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.017	
nu star	176.8	
A-D Test Statistic	0.693	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.222	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1.815	Mean	4.827
Maximum	14.7	SD	2.166
Mean	7.404	SE of Mean	0.403
Median	5.923	95% KM (t) UCL	5.505
SD	3.24	95% KM (z) UCL	5.49
k star	5.325	95% KM (jackknife) UCL	5.43
Theta star	1.39	95% KM (bootstrap t) UCL	5.985
Nu star	479.2	95% KM (BCA) UCL	5.743
AppChi2	429.5	95% KM (Percentile Bootstrap) UCL	5.614
95% Gamma Approximate UCL	8.262	95% KM (Chebyshev) UCL	6.585
95% Adjusted Gamma UCL	8.292	97.5% KM (Chebyshev) UCL	7.345
		99% KM (Chebyshev) UCL	8.839
		Potential UCLs to Use	
		95% KM (t) UCL	5.505

Note: DL/2 is not a recommended method.

Result (silver)

General Statistics

Number of Valid Data	45	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	33
		Percent Non-Detects	73.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.84	Minimum Detected	2.179
Maximum Detected	74.8	Maximum Detected	4.315
Mean of Detected	43.46	Mean of Detected	3.576
SD of Detected	23.42	SD of Detected	0.733
Minimum Non-Detect	1.9	Minimum Non-Detect	0.642
Maximum Non-Detect	34.7	Maximum Non-Detect	3.547

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	9
Single DL Non-Detect Percentage	80.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.922	Shapiro Wilk Test Statistic	0.858
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	17.85	Mean	2.214
SD	20.33	SD	1.256
95% DL/2 (t) UCL	22.94	95% H-Stat (DL/2) UCL	29.52
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.371	Mean in Log Scale	1.961
SD	33.81	SD in Log Scale	1.097
95% MLE (t) UCL	14.84	Mean in Original Scale	14.66
95% MLE (Tiku) UCL	26.7	SD in Original Scale	21.14
		95% Percentile Bootstrap UCL	19.83
		95% BCA Bootstrap UCL	20.89

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.083	Data appear Normal at 5% Significance Level
Theta Star	20.87	
nu star	49.99	
A-D Test Statistic	0.547	
5% A-D Critical Value	0.74	
K-S Test Statistic	0.74	
5% K-S Critical Value	0.248	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	8.84	Mean	18.24
Maximum	74.8	SD	19.14
Mean	44.01	SE of Mean	2.988
Median	45	95% KM (t) UCL	23.26
SD	11.85	95% KM (z) UCL	23.15
k star	8.944	95% KM (jackknife) UCL	22.4
Theta star	4.921	95% KM (bootstrap t) UCL	23.59
Nu star	804.9	95% KM (BCA) UCL	40.75
AppChi2	740.1	95% KM (Percentile Bootstrap) UCL	27.99
95% Gamma Approximate UCL	47.87	95% KM (Chebyshev) UCL	31.26
95% Adjusted Gamma UCL	48	97.5% KM (Chebyshev) UCL	36.89
		99% KM (Chebyshev) UCL	47.96
		Potential UCLs to Use	
		95% KM (t) UCL	23.26
		95% KM (Percentile Bootstrap) UCL	27.99

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (1,1-dichloroethane)

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00153	Minimum Detected	-6.482
Maximum Detected	0.0019	Maximum Detected	-6.266
Mean of Detected	0.00173	Mean of Detected	-6.363
SD of Detected	0.000143	SD of Detected	0.0832
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Test Statistic	0.955
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000934	Mean	-7.164
SD	0.00061	SD	0.611
95% DL/2 (t) UCL	0.00119	95% H-Stat (DL/2) UCL	0.000932
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.00173	Mean in Log Scale	-6.555
SD	0.00013	SD in Log Scale	0.176
95% MLE (t) UCL	0.00178	Mean in Original Scale	0.00144
95% MLE (Tiku) UCL	0.00182	SD in Original Scale	0.000256
		95% Percentile Bootstrap UCL	0.00155
		95% BCA Bootstrap UCL	0.00156

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	87.25	Data appear Normal at 5% Significance Level
Theta Star	1.98E-05	
nu star	1047	
A-D Test Statistic	0.239	
5% A-D Critical Value	0.696	
K-S Test Statistic	0.696	
5% K-S Critical Value	0.332	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0015	Mean	0.0016
Maximum	0.00204	SD	0.000122
Mean	0.0018	SE of Mean	3.25E-05
Median	0.00184	95% KM (t) UCL	0.00166
SD	0.000165	95% KM (z) UCL	0.00165
k star	102.2	95% KM (jackknife) UCL	0.00167
Theta star	1.76E-05	95% KM (bootstrap t) UCL	0.00165
Nu star	3474	95% KM (BCA) UCL	0.00179
AppChi2	3338	95% KM (Percentile Bootstrap) UCL	0.00172
95% Gamma Approximate UCL	0.00188	95% KM (Chebyshev) UCL	0.00174
95% Adjusted Gamma UCL	0.00188	97.5% KM (Chebyshev) UCL	0.0018
		99% KM (Chebyshev) UCL	0.00192
		Potential UCLs to Use	
		95% KM (t) UCL	0.00166
		95% KM (Percentile Bootstrap) UCL	0.00172

Note: DL/2 is not a recommended method.

Result (aluminum)

General Statistics

Number of Valid Data	12	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	6
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.051	Minimum Detected	-2.976
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	1.335	Mean of Detected	-0.407
SD of Detected	1.426	SD of Detected	1.536
Minimum Non-Detect	0.03	Minimum Non-Detect	-3.507
Maximum Non-Detect	0.03	Maximum Non-Detect	-3.507

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.87	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.675	Mean	-2.303
SD	1.183	SD	2.235
95% DL/2 (t) UCL	1.288	95% H-Stat (DL/2) UCL	4.543
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.647
		SD in Log Scale	2.734
		Mean in Original Scale	0.675
		SD in Original Scale	1.183
		95% Percentile Bootstrap UCL	1.28
		95% BCA Bootstrap UCL	1.463

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.534	Data appear Normal at 5% Significance Level
Theta Star	2.497	
nu star	6.413	
A-D Test Statistic	0.163	
5% A-D Critical Value	0.719	
K-S Test Statistic	0.719	
5% K-S Critical Value	0.342	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.693
Maximum	3.9	SD	1.122
Mean	1.349	SE of Mean	0.355
Median	1.031	95% KM (t) UCL	1.33
SD	1.323	95% KM (z) UCL	1.276
k star	0.29	95% KM (jackknife) UCL	1.249
Theta star	4.658	95% KM (bootstrap t) UCL	1.972
Nu star	6.952	95% KM (BCA) UCL	1.7
AppChi2	2.144	95% KM (Percentile Bootstrap) UCL	1.474
95% Gamma Approximate UCL	4.374	95% KM (Chebyshev) UCL	2.239
95% Adjusted Gamma UCL	5.327	97.5% KM (Chebyshev) UCL	2.909
		99% KM (Chebyshev) UCL	4.223
		Potential UCLs to Use	
		95% KM (t) UCL	1.33
		95% KM (Percentile Bootstrap) UCL	1.474

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Data	16	Number of Detected Data	10
Number of Distinct Detected Data	8	Number of Non-Detect Data	6
		Percent Non-Detects	37.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	0.042	Maximum Detected	-3.17
Mean of Detected	0.0186	Mean of Detected	-4.134
SD of Detected	0.0117	SD of Detected	0.549
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	16
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.772	Shapiro Wilk Test Statistic	0.826
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0248	Mean	-3.995
SD	0.0181	SD	0.829
95% DL/2 (t) UCL	0.0327	95% H-Stat (DL/2) UCL	0.0715
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.345
		SD in Log Scale	0.654
		Mean in Original Scale	0.0158
		SD in Original Scale	0.0108
		95% Percentile Bootstrap UCL	0.0202
		95% BCA Bootstrap UCL	0.0215

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.523	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.00737	
nu star	50.47	
A-D Test Statistic	0.886	
5% A-D Critical Value	0.731	
K-S Test Statistic	0.731	
5% K-S Critical Value	0.268	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.00217	Mean	0.0172
Maximum	0.042	SD	0.0106
Mean	0.0176	SE of Mean	0.00323
Median	0.0125	95% KM (t) UCL	0.0228
SD	0.0111	95% KM (z) UCL	0.0225
k star	2.06	95% KM (jackknife) UCL	0.0228
Theta star	0.00853	95% KM (bootstrap t) UCL	0.0291
Nu star	65.91	95% KM (BCA) UCL	0.0226
AppChi2	48.23	95% KM (Percentile Bootstrap) UCL	0.0227
95% Gamma Approximate UCL	0.024	95% KM (Chebyshev) UCL	0.0312
95% Adjusted Gamma UCL	0.0249	97.5% KM (Chebyshev) UCL	0.0373
		99% KM (Chebyshev) UCL	0.0493
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.0226

Note: DL/2 is not a recommended method.

Result (beryllium)

General Statistics

Number of Valid Data	15	Number of Detected Data	5
Number of Distinct Detected Data	4	Number of Non-Detect Data	10
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.003	Minimum Detected	-5.809
Maximum Detected	0.008	Maximum Detected	-4.828
Mean of Detected	0.0052	Mean of Detected	-5.328
SD of Detected	0.00217	SD of Detected	0.415
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0025	Maximum Non-Detect	-5.991

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	5
Single DL Non-Detect Percentage	66.67%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.871
5% Shapiro Wilk Critical Value	0.762

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.897
5% Shapiro Wilk Critical Value	0.762

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00253
SD	0.00227
95% DL/2 (t) UCL	0.00357
Maximum Likelihood Estimate(MLE) Method	
Mean	0.000854
SD	0.00394
95% MLE (t) UCL	0.00264
95% MLE (Tiku) UCL	0.00372

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.262
SD	0.723
95% H-Stat (DL/2) UCL	0.00265
Log ROS Method	
Mean in Log Scale	-6.347
SD in Log Scale	0.885
Mean in Original Scale	0.00252
SD in Original Scale	0.00232
95% Percentile Bootstrap UCL	0.00353
95% BCA Bootstrap UCL	0.00362

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	3.082
Theta Star	0.00169
nu star	30.82
A-D Test Statistic	0.44
5% A-D Critical Value	0.68
K-S Test Statistic	0.68
5% K-S Critical Value	0.358

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.003
Maximum	0.008
Mean	0.00509
Median	0.00495
SD	0.00118
k star	16.86
Theta star	0.000302
Nu star	505.7
AppChi2	454.6
95% Gamma Approximate UCL	0.00566
95% Adjusted Gamma UCL	0.00574

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00373
SD	0.00153
SE of Mean	0.000441
95% KM (t) UCL	0.00451
95% KM (z) UCL	0.00446
95% KM (jackknife) UCL	0.00452
95% KM (bootstrap t) UCL	0.00534
95% KM (BCA) UCL	0.00707
95% KM (Percentile Bootstrap) UCL	0.00507
95% KM (Chebyshev) UCL	0.00565
97.5% KM (Chebyshev) UCL	0.00648
99% KM (Chebyshev) UCL	0.00812

Potential UCLs to Use

95% KM (t) UCL	0.00451
95% KM (Percentile Bootstrap) UCL	0.00507

Result (boron)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		Log-transformed Statistics	
Minimum	2.75	Minimum of Log Data	1.012
Maximum	5.23	Maximum of Log Data	1.654
Mean	4.251	Mean of log Data	1.434
Median	4.34	SD of log Data	0.177
SD	0.694		
Coefficient of Variation	0.163		
Skewness	-0.697		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.954	Shapiro Wilk Test Statistic	0.912
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.611	95% H-UCL	4.696
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.205
95% Adjusted-CLT UCL	4.537	97.5% Chebyshev (MVUE) UCL	5.617
95% Modified-t UCL	4.604	99% Chebyshev (MVUE) UCL	6.426

Gamma Distribution Test		Data Distribution
k star (bias corrected)	27.82	**Data appear Normal at 5% Significance Level**
Theta Star	0.153	
nu star	667.7	
Approximate Chi Square Value (.05)	608.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 4.58
Adjusted Chi Square Value	600.1	95% Jackknife UCL 4.611
		95% Standard Bootstrap UCL 4.565
Anderson-Darling Test Statistic	0.344	95% Bootstrap-t UCL 4.571
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 4.55
Kolmogorov-Smirnov Test Statistic	0.178	95% Percentile Bootstrap UCL 4.552
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 4.521
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 5.124
		97.5% Chebyshev(Mean, Sd) UCL 5.502
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 6.245
95% Approximate Gamma UCL	4.662	
95% Adjusted Gamma UCL	4.729	

Potential UCL to Use	Use 95% Student's-t UCL 4.611

Result (bromide)

General Statistics

Number of Valid Data	15	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	8
		Percent Non-Detects	53.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.52	Minimum Detected	-0.654
Maximum Detected	3.43	Maximum Detected	1.233
Mean of Detected	1.307	Mean of Detected	0.0437
SD of Detected	1.042	SD of Detected	0.691
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1	Maximum Non-Detect	0

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	3
Single DL Non-Detect Percentage	80.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.771	Shapiro Wilk Test Statistic	0.875
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.69	Mean	-1.1
SD	0.912	SD	1.262
95% DL/2 (t) UCL	1.105	95% H-Stat (DL/2) UCL	1.232
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.936
		SD in Log Scale	1.134
		Mean in Original Scale	0.712
		SD in Original Scale	0.896
		95% Percentile Bootstrap UCL	1.09
		95% BCA Bootstrap UCL	1.274

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.458	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.897	
nu star	20.41	
A-D Test Statistic	0.585	
5% A-D Critical Value	0.714	
K-S Test Statistic	0.714	
5% K-S Critical Value	0.315	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0134	Mean	0.89
Maximum	3.43	SD	0.766
Mean	1.366	SE of Mean	0.214
Median	1.368	95% KM (t) UCL	1.267
SD	0.916	95% KM (z) UCL	1.242
k star	1.146	95% KM (jackknife) UCL	1.222
Theta star	1.192	95% KM (bootstrap t) UCL	1.635
Nu star	34.39	95% KM (BCA) UCL	1.447
AppChi2	21.98	95% KM (Percentile Bootstrap) UCL	1.275
95% Gamma Approximate UCL	2.138	95% KM (Chebyshev) UCL	1.822
95% Adjusted Gamma UCL	2.263	97.5% KM (Chebyshev) UCL	2.225
		99% KM (Chebyshev) UCL	3.017
		Potential UCLs to Use	
		95% KM (t) UCL	1.267

Note: DL/2 is not a recommended method.

Result (chloride (cl))

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	16

Raw Statistics		Log-transformed Statistics	
Minimum	297	Minimum of Log Data	5.694
Maximum	2450	Maximum of Log Data	7.804
Mean	1189	Mean of log Data	6.744
Median	476	SD of log Data	0.858
SD	937.5		
Coefficient of Variation	0.788		
Skewness	0.414		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.72	Shapiro Wilk Test Statistic	0.762
Shapiro Wilk Critical Value	0.892	Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1586	95% H-UCL	2072
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2365
95% Adjusted-CLT UCL	1588	97.5% Chebyshev (MVUE) UCL	2872
95% Modified-t UCL	1590	99% Chebyshev (MVUE) UCL	3868

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.382	Data do not follow a Discernable Distribution (0.05)
Theta Star	860.6	
nu star	46.98	
Approximate Chi Square Value (.05)	32.25	**Nonparametric Statistics**
Adjusted Level of Significance	0.0346	95% CLT UCL 1563
Adjusted Chi Square Value	30.98	95% Jackknife UCL 1586
		95% Standard Bootstrap UCL 1545
Anderson-Darling Test Statistic	2.121	95% Bootstrap-t UCL 1616
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL 1544
Kolmogorov-Smirnov Test Statistic	0.299	95% Percentile Bootstrap UCL 1538
Kolmogorov-Smirnov 5% Critical Value	0.213	95% BCA Bootstrap UCL 1593
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2180
		97.5% Chebyshev(Mean, Sd) UCL 2609
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 3452
95% Approximate Gamma UCL	1732	
95% Adjusted Gamma UCL	1804	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 2180

Result (chloroform)

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0014	Minimum Detected	-6.571
Maximum Detected	0.00219	Maximum Detected	-6.124
Mean of Detected	0.0018	Mean of Detected	-6.327
SD of Detected	0.000267	SD of Detected	0.151
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.99
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.979
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00096
SD	0.000659
95% DL/2 (t) UCL	0.00124
Maximum Likelihood Estimate(MLE) Method	
Mean	0.0018
SD	0.000243
95% MLE (t) UCL	0.00191
95% MLE (Tiku) UCL	0.00198

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.151
SD	0.633
95% H-Stat (DL/2) UCL	0.000954
Log ROS Method	
Mean in Log Scale	-6.67
SD in Log Scale	0.317
Mean in Original Scale	0.00133
SD in Original Scale	0.000423
95% Percentile Bootstrap UCL	0.00149
95% BCA Bootstrap UCL	0.00149

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	26.85
Theta Star	6.72E-05
nu star	322.2
A-D Test Statistic	0.19
5% A-D Critical Value	0.697
K-S Test Statistic	0.697
5% K-S Critical Value	0.332

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00139
Maximum	0.00239
Mean	0.00194
Median	0.00195
SD	0.000308
k star	32.85
Theta star	5.92E-05
Nu star	1117
AppChi2	1040
95% Gamma Approximate UCL	0.00209
95% Adjusted Gamma UCL	0.0021

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00154
SD	0.000241
SE of Mean	6.4E-05
95% KM (t) UCL	0.00165
95% KM (z) UCL	0.00165
95% KM (jackknife) UCL	0.0017
95% KM (bootstrap t) UCL	0.00164
95% KM (BCA) UCL	0.00186
95% KM (Percentile Bootstrap) UCL	0.00185
95% KM (Chebyshev) UCL	0.00182
97.5% KM (Chebyshev) UCL	0.00194
99% KM (Chebyshev) UCL	0.00218

Potential UCLs to Use

95% KM (t) UCL	0.00165
95% KM (Percentile Bootstrap) UCL	0.00185

Result (chromium)

General Statistics

Number of Valid Data	17	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	9
		Percent Non-Detects	52.94%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.008	Minimum Detected	-4.828
Maximum Detected	0.18	Maximum Detected	-1.715
Mean of Detected	0.114	Mean of Detected	-2.541
SD of Detected	0.0651	SD of Detected	1.165
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	7
Single DL Non-Detect Percentage	58.82%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.838
5% Shapiro Wilk Critical Value	0.818

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.717
5% Shapiro Wilk Critical Value	0.818

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0555
SD	0.071
95% DL/2 (t) UCL	0.0856
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-4.164
SD	1.774
95% H-Stat (DL/2) UCL	0.134
Log ROS Method	
Mean in Log Scale	-3.96
SD in Log Scale	1.683
Mean in Original Scale	0.0572
SD in Original Scale	0.0698
95% Percentile Bootstrap UCL	0.0842
95% BCA Bootstrap UCL	0.0854

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.028
Theta Star	0.111
nu star	16.45
A-D Test Statistic	1.064
5% A-D Critical Value	0.728
K-S Test Statistic	0.728
5% K-S Critical Value	0.299

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.008
Maximum	0.18
Mean	0.115
Median	0.121
SD	0.0466
k star	2.409
Theta star	0.0476
Nu star	81.9
AppChi2	62.05
95% Gamma Approximate UCL	0.151
95% Adjusted Gamma UCL	0.156

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0577
SD	0.0673
SE of Mean	0.0174
95% KM (t) UCL	0.0882
95% KM (z) UCL	0.0864
95% KM (jackknife) UCL	0.0846
95% KM (bootstrap t) UCL	0.0867
95% KM (BCA) UCL	0.134
95% KM (Percentile Bootstrap) UCL	0.13
95% KM (Chebyshev) UCL	0.134
97.5% KM (Chebyshev) UCL	0.167
99% KM (Chebyshev) UCL	0.231

Potential UCLs to Use

95% KM (t) UCL	0.0882
95% KM (Percentile Bootstrap) UCL	0.13

Result (copper)

General Statistics

Number of Valid Data	17	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	9
		Percent Non-Detects	52.94%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.078	Maximum Detected	-2.551
Mean of Detected	0.0335	Mean of Detected	-3.711
SD of Detected	0.0244	SD of Detected	0.935
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.0125	Maximum Non-Detect	-4.382

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	5
Single DL Non-Detect Percentage	70.59%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.919	Shapiro Wilk Test Statistic	0.92
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0175	Mean	-4.81
SD	0.0224	SD	1.267
95% DL/2 (t) UCL	0.027	95% H-Stat (DL/2) UCL	0.0197
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0489	Mean in Log Scale	-4.996
SD	0.0164	SD in Log Scale	1.501
95% MLE (t) UCL	0.0558	Mean in Original Scale	0.0172
95% MLE (Tiku) UCL	0.0616	SD in Original Scale	0.0227
		95% Percentile Bootstrap UCL	0.0266
		95% BCA Bootstrap UCL	0.0281

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.169	Data appear Normal at 5% Significance Level
Theta Star	0.0286	
nu star	18.71	
A-D Test Statistic	0.351	
5% A-D Critical Value	0.726	
K-S Test Statistic	0.726	
5% K-S Critical Value	0.298	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0186
Maximum	0.078	SD	0.0211
Mean	0.0325	SE of Mean	0.00547
Median	0.0288	95% KM (t) UCL	0.0281
SD	0.0216	95% KM (z) UCL	0.0276
k star	0.481	95% KM (jackknife) UCL	0.0269
Theta star	0.0677	95% KM (bootstrap t) UCL	0.0299
Nu star	16.35	95% KM (BCA) UCL	0.0374
AppChi2	8.209	95% KM (Percentile Bootstrap) UCL	0.0309
95% Gamma Approximate UCL	0.0648	95% KM (Chebyshev) UCL	0.0424
95% Adjusted Gamma UCL	0.0699	97.5% KM (Chebyshev) UCL	0.0528
		99% KM (Chebyshev) UCL	0.073
		Potential UCLs to Use	
		95% KM (t) UCL	0.0281
		95% KM (Percentile Bootstrap) UCL	0.0309

Note: DL/2 is not a recommended method.

Result (fluoride)

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	14	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.21	Minimum Detected	1.166
Maximum Detected	7.02	Maximum Detected	1.949
Mean of Detected	4.158	Mean of Detected	1.391
SD of Detected	1.226	SD of Detected	0.258
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.754	Shapiro Wilk Test Statistic	0.805
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.919	Mean	1.174
SD	1.542	SD	0.93
95% DL/2 (t) UCL	4.572	95% H-Stat (DL/2) UCL	7.026
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.894	Mean in Log Scale	1.356
SD	1.566	SD in Log Scale	0.288
95% MLE (t) UCL	4.558	Mean in Original Scale	4.044
95% MLE (Tiku) UCL	4.575	SD in Original Scale	1.277
		95% Percentile Bootstrap UCL	4.555
		95% BCA Bootstrap UCL	4.72

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	12.09	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.344	
nu star	386.9	
A-D Test Statistic	1.361	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.215	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1.989	Mean	4.102
Maximum	7.02	SD	1.173
Mean	4.031	SE of Mean	0.294
Median	3.42	95% KM (t) UCL	4.615
SD	1.299	95% KM (z) UCL	4.586
k star	9.467	95% KM (jackknife) UCL	4.614
Theta star	0.426	95% KM (bootstrap t) UCL	4.982
Nu star	321.9	95% KM (BCA) UCL	4.641
AppChi2	281.3	95% KM (Percentile Bootstrap) UCL	4.585
95% Gamma Approximate UCL	4.612	95% KM (Chebyshev) UCL	5.383
95% Adjusted Gamma UCL	4.678	97.5% KM (Chebyshev) UCL	5.938
		99% KM (Chebyshev) UCL	7.027
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	5.383

Note: DL/2 is not a recommended method.

Result (iron)

General Statistics

Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.014	Minimum Detected	-4.269
Maximum Detected	2.18	Maximum Detected	0.779
Mean of Detected	0.517	Mean of Detected	-1.803
SD of Detected	0.707	SD of Detected	1.815
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.76	Shapiro Wilk Test Statistic	0.936
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.431	Mean	-2.386
SD	0.67	SD	2.133
95% DL/2 (t) UCL	0.779	95% H-Stat (DL/2) UCL	6.71
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.353	Mean in Log Scale	-2.534
SD	0.73	SD in Log Scale	2.379
95% MLE (t) UCL	0.732	Mean in Original Scale	0.431
95% MLE (Tiku) UCL	0.722	SD in Original Scale	0.67
		95% Percentile Bootstrap UCL	0.768
		95% BCA Bootstrap UCL	0.875

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.45	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.147	
nu star	9.006	
A-D Test Statistic	0.305	
5% A-D Critical Value	0.773	
K-S Test Statistic	0.773	
5% K-S Critical Value	0.28	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.433
Maximum	2.18	SD	0.641
Mean	0.431	SE of Mean	0.195
Median	0.108	95% KM (t) UCL	0.783
SD	0.671	95% KM (z) UCL	0.754
k star	0.192	95% KM (jackknife) UCL	0.779
Theta star	2.246	95% KM (bootstrap t) UCL	1.108
Nu star	4.602	95% KM (BCA) UCL	0.758
AppChi2	0.973	95% KM (Percentile Bootstrap) UCL	0.767
95% Gamma Approximate UCL	2.037	95% KM (Chebyshev) UCL	1.283
95% Adjusted Gamma UCL	2.65	97.5% KM (Chebyshev) UCL	1.65
		99% KM (Chebyshev) UCL	2.372
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	1.283

Note: DL/2 is not a recommended method.

Result (molybdenum)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		Log-transformed Statistics	
Minimum	0.158	Minimum of Log Data	-1.845
Maximum	0.352	Maximum of Log Data	-1.044
Mean	0.257	Mean of log Data	-1.383
Median	0.244	SD of log Data	0.228
SD	0.057		
Coefficient of Variation	0.222		
Skewness	0.181		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.968	Shapiro Wilk Test Statistic	0.968
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.286	95% H-UCL	0.293
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.331
95% Adjusted-CLT UCL	0.285	97.5% Chebyshev (MVUE) UCL	0.363
95% Modified-t UCL	0.286	99% Chebyshev (MVUE) UCL	0.426

Gamma Distribution Test		Data Distribution
k star (bias corrected)	16.26	**Data appear Normal at 5% Significance Level**
Theta Star	0.0158	
nu star	390.3	
Approximate Chi Square Value (.05)	345.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 0.284
Adjusted Chi Square Value	339.1	95% Jackknife UCL 0.286
		95% Standard Bootstrap UCL 0.283
Anderson-Darling Test Statistic	0.21	95% Bootstrap-t UCL 0.289
Anderson-Darling 5% Critical Value	0.732	95% Hall's Bootstrap UCL 0.285
Kolmogorov-Smirnov Test Statistic	0.141	95% Percentile Bootstrap UCL 0.283
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 0.285
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.328
		97.5% Chebyshev(Mean, Sd) UCL 0.36
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 0.42
95% Approximate Gamma UCL	0.29	
95% Adjusted Gamma UCL	0.296	

Potential UCL to Use		Use 95% Student's-t UCL	0.286

Result (nitrate)

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		Log-transformed Statistics	
Minimum	9.66	Minimum of Log Data	2.268
Maximum	82.8	Maximum of Log Data	4.416
Mean	47.6	Mean of log Data	3.541
Median	47.15	SD of log Data	0.89
SD	33.61		
Coefficient of Variation	0.706		
Skewness	-0.000686		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.737	Shapiro Wilk Test Statistic	0.779
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	63.5	95% H-UCL	97.76
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	104.4
95% Adjusted-CLT UCL	62.37	97.5% Chebyshev (MVUE) UCL	128.2
95% Modified-t UCL	63.5	99% Chebyshev (MVUE) UCL	174.9

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.383	Data do not follow a Discernable Distribution (0.05)
Theta Star	34.4	
nu star	38.74	
Approximate Chi Square Value (.05)	25.48	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 62.37
Adjusted Chi Square Value	24.06	95% Jackknife UCL 63.5
		95% Standard Bootstrap UCL 61.44
Anderson-Darling Test Statistic	1.583	95% Bootstrap-t UCL 63.34
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL 60.55
Kolmogorov-Smirnov Test Statistic	0.282	95% Percentile Bootstrap UCL 61.8
Kolmogorov-Smirnov 5% Critical Value	0.232	95% BCA Bootstrap UCL 61.79
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 86.75
		97.5% Chebyshev(Mean, Sd) UCL 103.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 137
95% Approximate Gamma UCL	72.36	
95% Adjusted Gamma UCL	76.63	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 86.75

Recommended UCL exceeds the maximum observation

Result (strontium)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		Log-transformed Statistics	
Minimum	4.6	Minimum of Log Data	1.526
Maximum	16.7	Maximum of Log Data	2.815
Mean	8.518	Mean of log Data	2.044
Median	6.675	SD of log Data	0.452
SD	4.143		
Coefficient of Variation	0.486		
Skewness	1.002		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.847	Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	10.67	95% H-UCL	11.35
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13.38
95% Adjusted-CLT UCL	10.85	97.5% Chebyshev (MVUE) UCL	15.5
95% Modified-t UCL	10.72	99% Chebyshev (MVUE) UCL	19.67

Gamma Distribution Test		Data Distribution
k star (bias corrected)	3.996	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.132	
nu star	95.9	
Approximate Chi Square Value (.05)	74.31	Nonparametric Statistics
Adjusted Level of Significance	0.029	95% CLT UCL 10.48
Adjusted Chi Square Value	71.42	95% Jackknife UCL 10.67
		95% Standard Bootstrap UCL 10.45
Anderson-Darling Test Statistic	0.631	95% Bootstrap-t UCL 11.4
Anderson-Darling 5% Critical Value	0.732	95% Hall's Bootstrap UCL 10.93
Kolmogorov-Smirnov Test Statistic	0.193	95% Percentile Bootstrap UCL 10.45
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 10.65
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 13.73
		97.5% Chebyshev(Mean, Sd) UCL 15.99
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20.42
95% Approximate Gamma UCL	10.99	
95% Adjusted Gamma UCL	11.44	

Potential UCL to Use	Use 95% Approximate Gamma UCL 10.99

Result (sulfate)

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	17

Raw Statistics

Minimum	3640
Maximum	7710
Mean	5518
Median	4570
SD	1695
Coefficient of Variation	0.307
Skewness	0.325

Log-transformed Statistics

Minimum of Log Data	8.2
Maximum of Log Data	8.95
Mean of log Data	8.572
SD of log Data	0.305

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.774
Shapiro Wilk Critical Value	0.892

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	6236

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	6229
95% Modified-t UCL	6241

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.798
Shapiro Wilk Critical Value	0.892

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	6375
95% Chebyshev (MVUE) UCL	7315
97.5% Chebyshev (MVUE) UCL	8093
99% Chebyshev (MVUE) UCL	9622

Gamma Distribution Test

k star (bias corrected)	9.52
Theta Star	579.7
nu star	323.7
Approximate Chi Square Value (.05)	283
Adjusted Level of Significance	0.0346
Adjusted Chi Square Value	279
Anderson-Darling Test Statistic	1.675
Anderson-Darling 5% Critical Value	0.739
Kolmogorov-Smirnov Test Statistic	0.263
Kolmogorov-Smirnov 5% Critical Value	0.209

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	6312
95% Adjusted Gamma UCL	6402

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	6195
95% Jackknife UCL	6236
95% Standard Bootstrap UCL	6189
95% Bootstrap-t UCL	6264
95% Hall's Bootstrap UCL	6134
95% Percentile Bootstrap UCL	6158
95% BCA Bootstrap UCL	6154
95% Chebyshev(Mean, Sd) UCL	7310
97.5% Chebyshev(Mean, Sd) UCL	8086
99% Chebyshev(Mean, Sd) UCL	9609

Potential UCL to Use

Use 95% Student's-t UCL	6236
or 95% Modified-t UCL	6241

Result (trichloroethylene)

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0318	Minimum Detected	-3.448
Maximum Detected	0.0438	Maximum Detected	-3.128
Mean of Detected	0.0379	Mean of Detected	-3.278
SD of Detected	0.00447	SD of Detected	0.118
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.957	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0137	Mean	-6.075
SD	0.0186	SD	2.131
95% DL/2 (t) UCL	0.0216	95% H-Stat (DL/2) UCL	0.0392
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0379	Mean in Log Scale	-3.551
SD	0.00408	SD in Log Scale	0.252
95% MLE (t) UCL	0.0397	Mean in Original Scale	0.0296
95% MLE (Tiku) UCL	N/A	SD in Original Scale	0.00749
		95% Percentile Bootstrap UCL	0.0326
		95% BCA Bootstrap UCL	0.0326

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	43.14	Data appear Normal at 5% Significance Level
Theta Star	0.000879	
nu star	517.7	
A-D Test Statistic	0.247	
5% A-D Critical Value	0.696	
K-S Test Statistic	0.696	
5% K-S Critical Value	0.332	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0311	Mean	0.034
Maximum	0.0475	SD	0.0038
Mean	0.0402	SE of Mean	0.00101
Median	0.0413	95% KM (t) UCL	0.0357
SD	0.0051	95% KM (z) UCL	0.0356
k star	52.47	95% KM (jackknife) UCL	0.0363
Theta star	0.000767	95% KM (bootstrap t) UCL	0.0356
Nu star	1784	95% KM (BCA) UCL	0.0389
AppChi2	1687	95% KM (Percentile Bootstrap) UCL	0.0377
95% Gamma Approximate UCL	0.0425	95% KM (Chebyshev) UCL	0.0384
95% Adjusted Gamma UCL	0.0428	97.5% KM (Chebyshev) UCL	0.0403
		99% KM (Chebyshev) UCL	0.044
		Potential UCLs to Use	
		95% KM (t) UCL	0.0357
		95% KM (Percentile Bootstrap) UCL	0.0377

Note: DL/2 is not a recommended method.

Result (vanadium (fume or dust))

General Statistics

Number of Valid Data	15	Number of Detected Data	13
Number of Distinct Detected Data	12	Number of Non-Detect Data	2
		Percent Non-Detects	13.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.013	Minimum Detected	-4.343
Maximum Detected	0.07	Maximum Detected	-2.659
Mean of Detected	0.0342	Mean of Detected	-3.492
SD of Detected	0.0176	SD of Detected	0.497
Minimum Non-Detect	0.025	Minimum Non-Detect	-3.689
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.89	Shapiro Wilk Test Statistic	0.971
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0313	Mean	-3.611
SD	0.018	SD	0.557
95% DL/2 (t) UCL	0.0395	95% H-Stat (DL/2) UCL	0.0465
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0284	Mean in Log Scale	-3.568
SD	0.0213	SD in Log Scale	0.504
95% MLE (t) UCL	0.0381	Mean in Original Scale	0.0319
95% MLE (Tiku) UCL	0.0393	SD in Original Scale	0.0174
		95% Percentile Bootstrap UCL	0.0391
		95% BCA Bootstrap UCL	0.0407

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.507	Data appear Normal at 5% Significance Level
Theta Star	0.00974	
nu star	91.18	
A-D Test Statistic	0.303	
5% A-D Critical Value	0.737	
K-S Test Statistic	0.737	
5% K-S Critical Value	0.238	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.013	Mean	0.032
Maximum	0.07	SD	0.0167
Mean	0.0323	SE of Mean	0.00451
Median	0.026	95% KM (t) UCL	0.04
SD	0.0172	95% KM (z) UCL	0.0395
k star	3.521	95% KM (jackknife) UCL	0.04
Theta star	0.00918	95% KM (bootstrap t) UCL	0.043
Nu star	105.6	95% KM (BCA) UCL	0.0397
AppChi2	82.92	95% KM (Percentile Bootstrap) UCL	0.0395
95% Gamma Approximate UCL	0.0412	95% KM (Chebyshev) UCL	0.0517
95% Adjusted Gamma UCL	0.0424	97.5% KM (Chebyshev) UCL	0.0602
		99% KM (Chebyshev) UCL	0.0769
		Potential UCLs to Use	
		95% KM (t) UCL	0.04
		95% KM (Percentile Bootstrap) UCL	0.0395

Note: DL/2 is not a recommended method.

Attachment C – ProUCL Output for SWMU 142

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (>c10-c28)

General Statistics

Number of Valid Data	10	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	5
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	19	Minimum Detected	2.944
Maximum Detected	2600	Maximum Detected	7.863
Mean of Detected	1091	Mean of Detected	5.769
SD of Detected	1090	SD of Detected	2.324
Minimum Non-Detect	13	Minimum Non-Detect	2.565
Maximum Non-Detect	71	Maximum Non-Detect	4.263

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	70.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.901	Shapiro Wilk Test Statistic	0.807
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	554.3	Mean	4.154
SD	920.9	SD	2.381
95% DL/2 (t) UCL	1088	95% H-Stat (DL/2) UCL	248394
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1805	Mean in Log Scale	3.129
SD	571.5	SD in Log Scale	3.326
95% MLE (t) UCL	2136	Mean in Original Scale	546.8
95% MLE (Tiku) UCL	2409	SD in Original Scale	925.7
		95% Percentile Bootstrap UCL	1061
		95% BCA Bootstrap UCL	1196

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.34	**Data appear Normal at 5% Significance Level**	
Theta Star	3211		
nu star	3.397		
A-D Test Statistic	0.557	**Nonparametric Statistics**	
5% A-D Critical Value	0.71	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.71	Mean	555.5
5% K-S Critical Value	0.371	SD	872.8
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	308.6
		95% KM (t) UCL	1121
Assuming Gamma Distribution		95% KM (z) UCL	1063
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1085
Minimum	19	95% KM (bootstrap t) UCL	1294
Maximum	2600	95% KM (BCA) UCL	1580
Mean	807.1	95% KM (Percentile Bootstrap) UCL	1580
Median	648.1	95% KM (Chebyshev) UCL	1901
SD	797.9	97.5% KM (Chebyshev) UCL	2483
k star	0.644	99% KM (Chebyshev) UCL	3626
Theta star	1252		
Nu star	12.89	**Potential UCLs to Use**	
AppChi2	5.818	95% KM (t) UCL	1121
95% Gamma Approximate UCL	1788	95% KM (Percentile Bootstrap) UCL	1580
95% Adjusted Gamma UCL	2074		

Note: DL/2 is not a recommended method.

Result (arsenic)

General Statistics

Number of Valid Data	24	Number of Detected Data	19
Number of Distinct Detected Data	15	Number of Non-Detect Data	5
		Percent Non-Detects	20.83%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.063	Minimum Detected	-2.765
Maximum Detected	53	Maximum Detected	3.97
Mean of Detected	14.32	Mean of Detected	1.898
SD of Detected	14.12	SD of Detected	1.677
Minimum Non-Detect	0.45	Minimum Non-Detect	-0.799
Maximum Non-Detect	0.61	Maximum Non-Detect	-0.494

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	6
Number treated as Detected	18
Single DL Non-Detect Percentage	25.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.824	Shapiro Wilk Test Statistic	0.863
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	11.39	Mean	1.229
SD	13.78	SD	1.994
95% DL/2 (t) UCL	16.21	95% H-Stat (DL/2) UCL	135.8
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	8.796	Mean in Log Scale	1.259
SD	16.7	SD in Log Scale	1.954
95% MLE (t) UCL	14.64	Mean in Original Scale	11.4
95% MLE (Tiku) UCL	14.8	SD in Original Scale	13.77
		95% Percentile Bootstrap UCL	16.22
		95% BCA Bootstrap UCL	17.24

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.692	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	20.69	
nu star	26.29	
A-D Test Statistic	0.651	
5% A-D Critical Value	0.778	
K-S Test Statistic	0.778	
5% K-S Critical Value	0.206	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.012
Maximum	53
Mean	11.34
Median	8.85
SD	13.83
k star	0.345
Theta star	32.89
Nu star	16.55
AppChi2	8.348
95% Gamma Approximate UCL	22.47
95% Adjusted Gamma UCL	23.62

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	11.35
SD	13.53
SE of Mean	2.837
95% KM (t) UCL	16.21
95% KM (z) UCL	16.01
95% KM (jackknife) UCL	16.09
95% KM (bootstrap t) UCL	17.97
95% KM (BCA) UCL	16.15
95% KM (Percentile Bootstrap) UCL	16.28
95% KM (Chebyshev) UCL	23.71
97.5% KM (Chebyshev) UCL	29.06
99% KM (Chebyshev) UCL	39.57
Potential UCLs to Use	
95% KM (Chebyshev) UCL	23.71

Result (barium)

General Statistics

Number of Valid Data	24	Number of Detected Data	14
Number of Distinct Detected Data	8	Number of Non-Detect Data	10
		Percent Non-Detects	41.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	45	Minimum Detected	3.807
Maximum Detected	330	Maximum Detected	5.799
Mean of Detected	155.1	Mean of Detected	4.934
SD of Detected	72.11	SD of Detected	0.516
Minimum Non-Detect	83	Minimum Non-Detect	4.419
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	12
Single DL Non-Detect Percentage	50.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.912	Shapiro Wilk Test Statistic	0.907
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	110.6	Mean	4.491
SD	76.47	SD	0.662
95% DL/2 (t) UCL	137.3	95% H-Stat (DL/2) UCL	161.6
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	105.3	Mean in Log Scale	4.573
SD	87.84	SD in Log Scale	0.59
95% MLE (t) UCL	136.1	Mean in Original Scale	115
95% MLE (Tiku) UCL	143.3	SD in Original Scale	72.9
		95% Percentile Bootstrap UCL	139.7
		95% BCA Bootstrap UCL	142.9

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.736	Data appear Normal at 5% Significance Level
Theta Star	41.52	
nu star	104.6	
A-D Test Statistic	0.519	
5% A-D Critical Value	0.739	
K-S Test Statistic	0.739	
5% K-S Critical Value	0.229	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	45	Mean	111.8
Maximum	330	SD	73.95
Mean	148.7	SE of Mean	15.79
Median	141.6	95% KM (t) UCL	138.8
SD	57.73	95% KM (z) UCL	137.7
k star	5.925	95% KM (jackknife) UCL	139
Theta star	25.09	95% KM (bootstrap t) UCL	144.7
Nu star	284.4	95% KM (BCA) UCL	158.3
AppChi2	246.4	95% KM (Percentile Bootstrap) UCL	151.7
95% Gamma Approximate UCL	171.6	95% KM (Chebyshev) UCL	180.6
95% Adjusted Gamma UCL	173.4	97.5% KM (Chebyshev) UCL	210.4
		99% KM (Chebyshev) UCL	268.9
		Potential UCLs to Use	
		95% KM (t) UCL	138.8
		95% KM (Percentile Bootstrap) UCL	151.7

Note: DL/2 is not a recommended method.

Result (cadmium)

General Statistics

Number of Valid Data	24	Number of Detected Data	12
Number of Distinct Detected Data	7	Number of Non-Detect Data	12
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1	Minimum Detected	0
Maximum Detected	4	Maximum Detected	1.386
Mean of Detected	1.792	Mean of Detected	0.513
SD of Detected	0.803	SD of Detected	0.369
Minimum Non-Detect	0.44	Minimum Non-Detect	-0.821
Maximum Non-Detect	2.7	Maximum Non-Detect	0.993

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	23
Number treated as Detected	1
Single DL Non-Detect Percentage	95.83%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.771	Shapiro Wilk Test Statistic	0.912
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.431	Mean	0.24
SD	0.711	SD	0.54
95% DL/2 (t) UCL	1.68	95% H-Stat (DL/2) UCL	2.452
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.365
		SD in Log Scale	0.35
		Mean in Original Scale	1.537
		SD in Original Scale	0.651
		95% Percentile Bootstrap UCL	1.765
		95% BCA Bootstrap UCL	1.827

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.535	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.324	
nu star	132.8	
A-D Test Statistic	0.642	
5% A-D Critical Value	0.731	
K-S Test Statistic	0.731	
5% K-S Critical Value	0.246	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.766
Maximum	4
Mean	1.749
Median	1.717
SD	0.659
k star	7.121
Theta star	0.246
Nu star	341.8
AppChi2	300
95% Gamma Approximate UCL	1.993
95% Adjusted Gamma UCL	2.012

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.576
SD	0.637
SE of Mean	0.15
95% KM (t) UCL	1.833
95% KM (z) UCL	1.823
95% KM (jackknife) UCL	1.82
95% KM (bootstrap t) UCL	1.91
95% KM (BCA) UCL	1.853
95% KM (Percentile Bootstrap) UCL	1.843
95% KM (Chebyshev) UCL	2.229
97.5% KM (Chebyshev) UCL	2.511
99% KM (Chebyshev) UCL	3.066
Potential UCLs to Use	
95% KM (t) UCL	1.833

Result (chromium)

General Statistics

Number of Valid Data	21	Number of Detected Data	14
Number of Distinct Detected Data	10	Number of Non-Detect Data	7
		Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2	Minimum Detected	0.693
Maximum Detected	9.6	Maximum Detected	2.262
Mean of Detected	4.7	Mean of Detected	1.456
SD of Detected	2.188	SD of Detected	0.439
Minimum Non-Detect	4.2	Minimum Non-Detect	1.435
Maximum Non-Detect	7.3	Maximum Non-Detect	1.988

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	19
Number treated as Detected	2
Single DL Non-Detect Percentage	90.48%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.879	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.983	Mean	1.278
SD	2.067	SD	0.449
95% DL/2 (t) UCL	4.761	95% H-Stat (DL/2) UCL	6.182
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.369
		SD in Log Scale	0.379
		Mean in Original Scale	4.239
		SD in Original Scale	1.893
		95% Percentile Bootstrap UCL	4.932
		95% BCA Bootstrap UCL	5.054

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	4.459	Data appear Normal at 5% Significance Level
Theta Star	1.054	
nu star	124.8	
A-D Test Statistic	0.413	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.229	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	2	Mean	4.248
Maximum	9.6	SD	1.909
Mean	4.694	SE of Mean	0.453
Median	4.526	95% KM (t) UCL	5.029
SD	1.785	95% KM (z) UCL	4.993
k star	6.994	95% KM (jackknife) UCL	5.028
Theta star	0.671	95% KM (bootstrap t) UCL	5.302
Nu star	293.7	95% KM (BCA) UCL	5.069
AppChi2	255	95% KM (Percentile Bootstrap) UCL	4.999
95% Gamma Approximate UCL	5.406	95% KM (Chebyshev) UCL	6.222
95% Adjusted Gamma UCL	5.465	97.5% KM (Chebyshev) UCL	7.076
		99% KM (Chebyshev) UCL	8.754
		Potential UCLs to Use	
		95% KM (t) UCL	5.029
		95% KM (Percentile Bootstrap) UCL	4.999

Note: DL/2 is not a recommended method.

Result (lead)

General Statistics

Number of Valid Data	24	Number of Detected Data	15
Number of Distinct Detected Data	12	Number of Non-Detect Data	9
		Percent Non-Detects	37.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	23	Maximum Detected	3.135
Mean of Detected	13.25	Mean of Detected	2.411
SD of Detected	5.927	SD of Detected	0.748
Minimum Non-Detect	0.56	Minimum Non-Detect	-0.58
Maximum Non-Detect	27	Maximum Non-Detect	3.296

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	24
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.963	Shapiro Wilk Test Statistic	0.762
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.942	Mean	1.522
SD	7.338	SD	1.712
95% DL/2 (t) UCL	12.51	95% H-Stat (DL/2) UCL	97.85
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.036
		SD in Log Scale	0.814
		Mean in Original Scale	9.984
		SD in Original Scale	6.457
		95% Percentile Bootstrap UCL	12.06
		95% BCA Bootstrap UCL	12.17

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.474	Data appear Normal at 5% Significance Level
Theta Star	5.357	
nu star	74.22	
A-D Test Statistic	0.894	
5% A-D Critical Value	0.744	
K-S Test Statistic	0.744	
5% K-S Critical Value	0.223	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1.2	Mean	9.78
Maximum	23	SD	7.266
Mean	12.27	SE of Mean	1.637
Median	13	95% KM (t) UCL	12.59
SD	5.605	95% KM (z) UCL	12.47
k star	3.075	95% KM (jackknife) UCL	12.45
Theta star	3.991	95% KM (bootstrap t) UCL	12.42
Nu star	147.6	95% KM (BCA) UCL	14.23
AppChi2	120.5	95% KM (Percentile Bootstrap) UCL	13.44
95% Gamma Approximate UCL	15.03	95% KM (Chebyshev) UCL	16.91
95% Adjusted Gamma UCL	15.25	97.5% KM (Chebyshev) UCL	20
		99% KM (Chebyshev) UCL	26.07
		Potential UCLs to Use	
		95% KM (t) UCL	12.59
		95% KM (Percentile Bootstrap) UCL	13.44

Note: DL/2 is not a recommended method.

Result (selenium)

General Statistics

Number of Valid Data	24	Number of Detected Data	12
Number of Distinct Detected Data	10	Number of Non-Detect Data	12
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3	Minimum Detected	1.099
Maximum Detected	95	Maximum Detected	4.554
Mean of Detected	54.33	Mean of Detected	3.764
SD of Detected	25.97	SD of Detected	0.929
Minimum Non-Detect	0.45	Minimum Non-Detect	-0.799
Maximum Non-Detect	0.64	Maximum Non-Detect	-0.446

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	12
Single DL Non-Detect Percentage	50.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.972	Shapiro Wilk Test Statistic	0.714
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	27.31	Mean	1.249
SD	32.94	SD	2.649
95% DL/2 (t) UCL	38.83	95% H-Stat (DL/2) UCL	1952
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.715	Mean in Log Scale	2.827
SD	56.82	SD in Log Scale	1.168
95% MLE (t) UCL	25.59	Mean in Original Scale	30.59
95% MLE (Tiku) UCL	30.17	SD in Original Scale	30.21
		95% Percentile Bootstrap UCL	40.61
		95% BCA Bootstrap UCL	41.35

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.793	Data appear Normal at 5% Significance Level
Theta Star	30.3	
nu star	43.03	
A-D Test Statistic	0.805	
5% A-D Critical Value	0.741	
K-S Test Statistic	0.741	
5% K-S Critical Value	0.248	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	3	Mean	28.67
Maximum	95	SD	31.11
Mean	54.33	SE of Mean	6.633
Median	54.36	95% KM (t) UCL	40.04
SD	17.97	95% KM (z) UCL	39.58
k star	3.953	95% KM (jackknife) UCL	40.64
Theta star	13.74	95% KM (bootstrap t) UCL	39.81
Nu star	189.8	95% KM (BCA) UCL	54
AppChi2	158.9	95% KM (Percentile Bootstrap) UCL	50.67
95% Gamma Approximate UCL	64.89	95% KM (Chebyshev) UCL	57.58
95% Adjusted Gamma UCL	65.71	97.5% KM (Chebyshev) UCL	70.09
		99% KM (Chebyshev) UCL	94.67
		Potential UCLs to Use	
		95% KM (t) UCL	40.04
		95% KM (Percentile Bootstrap) UCL	50.67

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (>c10-c28)

General Statistics

Number of Valid Data	41	Number of Detected Data	26
Number of Distinct Detected Data	24	Number of Non-Detect Data	15
		Percent Non-Detects	36.59%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	28000	Maximum Detected	10.24
Mean of Detected	4219	Mean of Detected	7.145
SD of Detected	5843	SD of Detected	2.209
Minimum Non-Detect	11	Minimum Non-Detect	2.398
Maximum Non-Detect	71	Maximum Non-Detect	4.263

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	20
Number treated as Detected	21
Single DL Non-Detect Percentage	48.78%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.669	Shapiro Wilk Test Statistic	0.824
5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2679	Mean	5.296
SD	5055	SD	3.041
95% DL/2 (t) UCL	4009	95% H-Stat (DL/2) UCL	93344
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.46
		SD in Log Scale	2.904
		Mean in Original Scale	2682
		SD in Original Scale	5054
		95% Percentile Bootstrap UCL	4058
		95% BCA Bootstrap UCL	4518

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.49	Data appear Gamma Distributed at 5% Significance Level
Theta Star	8618	
nu star	25.46	
A-D Test Statistic	0.686	
5% A-D Critical Value	0.806	
K-S Test Statistic	0.806	
5% K-S Critical Value	0.181	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	2681
Maximum	28000	SD	4992
Mean	2973	SE of Mean	795.1
Median	1438	95% KM (t) UCL	4020
SD	4934	95% KM (z) UCL	3989
k star	0.178	95% KM (jackknife) UCL	4009
Theta star	16712	95% KM (bootstrap t) UCL	5121
Nu star	14.59	95% KM (BCA) UCL	4133
AppChi2	6.976	95% KM (Percentile Bootstrap) UCL	4081
95% Gamma Approximate UCL	6217	95% KM (Chebyshev) UCL	6147
95% Adjusted Gamma UCL	6394	97.5% KM (Chebyshev) UCL	7646
		99% KM (Chebyshev) UCL	10592
		Potential UCLs to Use	
		95% KM (BCA) UCL	4133

Note: DL/2 is not a recommended method.

Result (1,1,1-trichloroethane)

General Statistics

Number of Valid Data	117	Number of Detected Data	27
Number of Distinct Detected Data	27	Number of Non-Detect Data	90
		Percent Non-Detects	76.92%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0068	Minimum Detected	-4.991
Maximum Detected	21	Maximum Detected	3.045
Mean of Detected	1.871	Mean of Detected	-1.483
SD of Detected	4.345	SD of Detected	2.255
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	1.25	Maximum Non-Detect	0.223

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	111
Number treated as Detected	6
Single DL Non-Detect Percentage	94.87%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.488	Lilliefors Test Statistic	0.963
5% Lilliefors Critical Value	0.923	5% Lilliefors Critical Value	0.923
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.473	Mean	-4.074
SD	2.199	SD	2.304
95% DL/2 (t) UCL	0.81	95% H-Stat (DL/2) UCL	0.368
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.237
		SD in Log Scale	4.222
		Mean in Original Scale	0.433
		SD in Original Scale	2.204
		95% Percentile Bootstrap UCL	0.823
		95% BCA Bootstrap UCL	1.012

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.312	Data appear Lognormal at 5% Significance Level
Theta Star	6.003	
nu star	16.83	
A-D Test Statistic	1.286	
5% A-D Critical Value	0.848	
K-S Test Statistic	0.848	
5% K-S Critical Value	0.182	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.44
Maximum	40.33	SD	2.194
Mean	5.354	SE of Mean	0.207
Median	1.055	95% KM (t) UCL	0.783
SD	7.873	95% KM (z) UCL	0.78
k star	0.124	95% KM (jackknife) UCL	0.776
Theta star	43.01	95% KM (bootstrap t) UCL	1.385
Nu star	29.13	95% KM (BCA) UCL	0.908
AppChi2	17.81	95% KM (Percentile Bootstrap) UCL	0.822
95% Gamma Approximate UCL	8.757	95% KM (Chebyshev) UCL	1.341
95% Adjusted Gamma UCL	8.812	97.5% KM (Chebyshev) UCL	1.731
		99% KM (Chebyshev) UCL	2.497
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	1.731

Note: DL/2 is not a recommended method.

Result (1,1-dichloroethane)

General Statistics

Number of Valid Data	117	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	100
		Percent Non-Detects	85.47%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0069	Minimum Detected	-4.976
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.116	Mean of Detected	-3.416
SD of Detected	0.332	SD of Detected	1.28
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	1.25	Maximum Non-Detect	0.223

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	116
Number treated as Detected	1
Single DL Non-Detect Percentage	99.15%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.327
5% Lilliefors Critical Value	0.892

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.872
5% Lilliefors Critical Value	0.892

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0957
SD	0.215
95% DL/2 (t) UCL	0.129
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-4.379
SD	1.901
95% H-Stat (DL/2) UCL	0.114
Log ROS Method	
Mean in Log Scale	-7.118
SD in Log Scale	2.323
Mean in Original Scale	0.0182
SD in Original Scale	0.13
95% Percentile Bootstrap UCL	0.0416
95% BCA Bootstrap UCL	0.0563

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.454
Theta Star	0.255
nu star	15.43
A-D Test Statistic	2.254
5% A-D Critical Value	0.798
K-S Test Statistic	0.798
5% K-S Critical Value	0.221

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3.8
Mean	0.867
Median	0.512
SD	0.977
k star	0.212
Theta star	4.085
Nu star	49.63
AppChi2	34.46
95% Gamma Approximate UCL	1.248
95% Adjusted Gamma UCL	1.254

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0237
SD	0.129
SE of Mean	0.0123
95% KM (t) UCL	0.0441
95% KM (z) UCL	0.044
95% KM (jackknife) UCL	0.0434
95% KM (bootstrap t) UCL	0.163
95% KM (BCA) UCL	0.0521
95% KM (Percentile Bootstrap) UCL	0.0474
95% KM (Chebyshev) UCL	0.0773
97.5% KM (Chebyshev) UCL	0.1
99% KM (Chebyshev) UCL	0.146

Potential UCLs to Use

95% KM (BCA) UCL	0.0521

Result (1-methylnaphthalene)

General Statistics

Number of Valid Data	24	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	14
		Percent Non-Detects	58.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.327	Minimum Detected	-1.118
Maximum Detected	23.7	Maximum Detected	3.165
Mean of Detected	8.162	Mean of Detected	1.341
SD of Detected	8.157	SD of Detected	1.554
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.25	Maximum Non-Detect	-1.386

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.873	Shapiro Wilk Test Statistic	0.893
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.474	Mean	-0.654
SD	6.513	SD	1.978
95% DL/2 (t) UCL	5.752	95% H-Stat (DL/2) UCL	9.482
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.341
		SD in Log Scale	2.814
		Mean in Original Scale	3.457
		SD in Original Scale	6.522
		95% Percentile Bootstrap UCL	5.606
		95% BCA Bootstrap UCL	6.415

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.616	Data appear Normal at 5% Significance Level
Theta Star	13.26	
nu star	12.31	
A-D Test Statistic	0.354	
5% A-D Critical Value	0.756	
K-S Test Statistic	0.756	
5% K-S Critical Value	0.276	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	39.05
Mean	12.26
Median	8.935
SD	11.72
k star	0.279
Theta star	43.96
Nu star	13.39
AppChi2	6.154
95% Gamma Approximate UCL	26.67
95% Adjusted Gamma UCL	28.25

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	3.592
SD	6.315
SE of Mean	1.359
95% KM (t) UCL	5.92
95% KM (z) UCL	5.826
95% KM (jackknife) UCL	5.845
95% KM (bootstrap t) UCL	6.896
95% KM (BCA) UCL	6.579
95% KM (Percentile Bootstrap) UCL	6.14
95% KM (Chebyshev) UCL	9.514
97.5% KM (Chebyshev) UCL	12.08
99% KM (Chebyshev) UCL	17.11

Potential UCLs to Use	
95% KM (t) UCL	5.92
95% KM (Percentile Bootstrap) UCL	6.14

Result (2-methylnaphthalene)

General Statistics

Number of Valid Data	40	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	24
		Percent Non-Detects	60.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.698	Minimum Detected	-0.36
Maximum Detected	49	Maximum Detected	3.892
Mean of Detected	17.15	Mean of Detected	2.068
SD of Detected	16.76	SD of Detected	1.538
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	24
Number treated as Detected	16
Single DL Non-Detect Percentage	60.00%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.852
5% Shapiro Wilk Critical Value	0.887

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.869
5% Shapiro Wilk Critical Value	0.887

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	6.949
SD	13.38
95% DL/2 (t) UCL	10.51
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-0.327
SD	2.207
95% H-Stat (DL/2) UCL	14.07
Log ROS Method	
Mean in Log Scale	-0.546
SD in Log Scale	2.632
Mean in Original Scale	6.993
SD in Original Scale	13.36
95% Percentile Bootstrap UCL	10.67
95% BCA Bootstrap UCL	11.3

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.668
Theta Star	25.67
nu star	21.37
A-D Test Statistic	0.602
5% A-D Critical Value	0.774
K-S Test Statistic	0.774
5% K-S Critical Value	0.223

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	51.01
Mean	18.39
Median	13.08
SD	16.3
k star	0.255
Theta star	72.09
Nu star	20.4
AppChi2	11.15
95% Gamma Approximate UCL	33.65
95% Adjusted Gamma UCL	34.44

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	7.277
SD	13.05
SE of Mean	2.13
95% KM (t) UCL	10.87
95% KM (z) UCL	10.78
95% KM (jackknife) UCL	10.72
95% KM (bootstrap t) UCL	12.37
95% KM (BCA) UCL	11.03
95% KM (Percentile Bootstrap) UCL	11.18
95% KM (Chebyshev) UCL	16.56
97.5% KM (Chebyshev) UCL	20.58
99% KM (Chebyshev) UCL	28.47

Potential UCLs to Use

95% KM (t) UCL	10.87

Result (acenaphthene)

General Statistics

Number of Valid Data	65	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	57
		Percent Non-Detects	87.69%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.08	Minimum Detected	-2.526
Maximum Detected	2.6	Maximum Detected	0.956
Mean of Detected	1.18	Mean of Detected	-0.244
SD of Detected	0.913	SD of Detected	1.14
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.919	Lilliefors Test Statistic	0.901
5% Lilliefors Critical Value	0.818	5% Lilliefors Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.331	Mean	-1.612
SD	0.517	SD	0.803
95% DL/2 (t) UCL	0.438	95% H-Stat (DL/2) UCL	0.328
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.409
		SD in Log Scale	1.358
		Mean in Original Scale	0.24
		SD in Original Scale	0.476
		95% Percentile Bootstrap UCL	0.347
		95% BCA Bootstrap UCL	0.364

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.936	**Data appear Normal at 5% Significance Level**
Theta Star	1.26	
nu star	14.98	
A-D Test Statistic	0.267	
5% A-D Critical Value	0.73	
K-S Test Statistic	0.73	
5% K-S Critical Value	0.3	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.08	Mean	0.22
Maximum	2.6	SD	0.475
Mean	1.401	SE of Mean	0.0638
Median	1.424	95% KM (t) UCL	0.326
SD	0.386	95% KM (z) UCL	0.325
k star	7.519	95% KM (jackknife) UCL	0.421
Theta star	0.186	95% KM (bootstrap t) UCL	0.336
Nu star	977.5	95% KM (BCA) UCL	0.756
AppChi2	905.9	95% KM (Percentile Bootstrap) UCL	0.722
95% Gamma Approximate UCL	1.512	95% KM (Chebyshev) UCL	0.498
95% Adjusted Gamma UCL	1.514	97.5% KM (Chebyshev) UCL	0.618
		99% KM (Chebyshev) UCL	0.855
		Potential UCLs to Use	
		95% KM (t) UCL	0.326
		95% KM (Percentile Bootstrap) UCL	0.722

Note: DL/2 is not a recommended method.

Result (acetone)

General Statistics

Number of Valid Data	88	Number of Detected Data	14
Number of Distinct Detected Data	11	Number of Non-Detect Data	74
		Percent Non-Detects	84.09%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.12	Minimum Detected	-2.12
Maximum Detected	6.1	Maximum Detected	1.808
Mean of Detected	1.171	Mean of Detected	-0.452
SD of Detected	1.556	SD of Detected	1.163
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	86
Number treated as Detected	2
Single DL Non-Detect Percentage	97.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.651	Lilliefors Test Statistic	0.947
5% Lilliefors Critical Value	0.874	5% Lilliefors Critical Value	0.874
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.286	Mean	-2.349
SD	0.745	SD	1.183
95% DL/2 (t) UCL	0.418	95% H-Stat (DL/2) UCL	0.198
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.205
		SD in Log Scale	2.354
		Mean in Original Scale	0.205
		SD in Original Scale	0.736
		95% Percentile Bootstrap UCL	0.349
		95% BCA Bootstrap UCL	0.416

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.796	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.471	
nu star	22.28	
A-D Test Statistic	0.432	
5% A-D Critical Value	0.762	
K-S Test Statistic	0.762	
5% K-S Critical Value	0.236	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.292
Maximum	20.81	SD	0.713
Mean	7.928	SE of Mean	0.0791
Median	7.096	95% KM (t) UCL	0.423
SD	6.389	95% KM (z) UCL	0.422
k star	0.485	95% KM (jackknife) UCL	0.419
Theta star	16.35	95% KM (bootstrap t) UCL	0.59
Nu star	85.33	95% KM (BCA) UCL	0.559
AppChi2	65.04	95% KM (Percentile Bootstrap) UCL	0.46
95% Gamma Approximate UCL	10.4	95% KM (Chebyshev) UCL	0.636
95% Adjusted Gamma UCL	10.45	97.5% KM (Chebyshev) UCL	0.786
		99% KM (Chebyshev) UCL	1.079
		Potential UCLs to Use	
		95% KM (t) UCL	0.423

Note: DL/2 is not a recommended method.

Result (anthracene)

General Statistics

Number of Valid Data	65	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	54
		Percent Non-Detects	83.08%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.46	Minimum Detected	-0.777
Maximum Detected	6.16	Maximum Detected	1.818
Mean of Detected	2.43	Mean of Detected	0.565
SD of Detected	1.987	SD of Detected	0.875
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	63
Number treated as Detected	2
Single DL Non-Detect Percentage	96.92%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.854
5% Lilliefors Critical Value	0.85

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.958
5% Lilliefors Critical Value	0.85

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.594
SD	1.178
95% DL/2 (t) UCL	0.837
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-1.376
SD	1.063
95% H-Stat (DL/2) UCL	0.808
Log ROS Method	
Mean in Log Scale	-2.273
SD in Log Scale	1.793
Mean in Original Scale	0.505
SD in Original Scale	1.182
95% Percentile Bootstrap UCL	0.764
95% BCA Bootstrap UCL	0.83

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.293
Theta Star	1.879
nu star	28.46
A-D Test Statistic	0.242
5% A-D Critical Value	0.741
K-S Test Statistic	0.741
5% K-S Critical Value	0.259

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	7.388
Mean	3.509
Median	3.45
SD	2.243
k star	0.493
Theta star	7.112
Nu star	64.14
AppChi2	46.71
95% Gamma Approximate UCL	4.818
95% Adjusted Gamma UCL	4.853

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.797
SD	1.076
SE of Mean	0.14
95% KM (t) UCL	1.031
95% KM (z) UCL	1.028
95% KM (jackknife) UCL	0.985
95% KM (bootstrap t) UCL	1.127
95% KM (BCA) UCL	1.569
95% KM (Percentile Bootstrap) UCL	1.316
95% KM (Chebyshev) UCL	1.409
97.5% KM (Chebyshev) UCL	1.673
99% KM (Chebyshev) UCL	2.193

Potential UCLs to Use

95% KM (t) UCL	1.031
95% KM (Percentile Bootstrap) UCL	1.316

Result (arsenic)

General Statistics

Number of Valid Data	98	Number of Detected Data	80
Number of Distinct Detected Data	45	Number of Non-Detect Data	18
		Percent Non-Detects	18.37%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.063	Minimum Detected	-2.765
Maximum Detected	53	Maximum Detected	3.97
Mean of Detected	9.698	Mean of Detected	1.58
SD of Detected	10.56	SD of Detected	1.311
Minimum Non-Detect	0.45	Minimum Non-Detect	-0.799
Maximum Non-Detect	13	Maximum Non-Detect	2.565

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	33
Single DL Non-Detect Percentage	66.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.247	Lilliefors Test Statistic	0.186
5% Lilliefors Critical Value	0.0991	5% Lilliefors Critical Value	0.0991
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	8.038	Mean	1.102
SD	10.18	SD	1.591
95% DL/2 (t) UCL	9.745	95% H-Stat (DL/2) UCL	13.82
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.597	Mean in Log Scale	1.104
SD	13.24	SD in Log Scale	1.57
95% MLE (t) UCL	8.817	Mean in Original Scale	7.993
95% MLE (Tiku) UCL	10.19	SD in Original Scale	10.19
		95% Percentile Bootstrap UCL	9.893
		95% BCA Bootstrap UCL	9.89

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.828	Data do not follow a Discernable Distribution (0.05)
Theta Star	11.71	
nu star	132.5	
A-D Test Statistic	2.379	
5% A-D Critical Value	0.789	
K-S Test Statistic	0.789	
5% K-S Critical Value	0.103	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	7.957
Maximum	53	SD	10.17
Mean	7.987	SE of Mean	1.034
Median	3.05	95% KM (t) UCL	9.674
SD	10.21	95% KM (z) UCL	9.658
k star	0.181	95% KM (jackknife) UCL	9.617
Theta star	44.04	95% KM (bootstrap t) UCL	9.935
Nu star	35.55	95% KM (BCA) UCL	9.988
AppChi2	22.9	95% KM (Percentile Bootstrap) UCL	9.739
95% Gamma Approximate UCL	12.4	95% KM (Chebyshev) UCL	12.46
95% Adjusted Gamma UCL	12.48	97.5% KM (Chebyshev) UCL	14.41
		99% KM (Chebyshev) UCL	18.25
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	12.46

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Data	98	Number of Detected Data	66
Number of Distinct Detected Data	46	Number of Non-Detect Data	32
		Percent Non-Detects	32.65%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3	Minimum Detected	1.099
Maximum Detected	1000	Maximum Detected	6.908
Mean of Detected	99.33	Mean of Detected	4.169
SD of Detected	129.8	SD of Detected	0.967
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	74
Number treated as Detected	24
Single DL Non-Detect Percentage	75.51%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.229	Lilliefors Test Statistic	0.0842
5% Lilliefors Critical Value	0.109	5% Lilliefors Critical Value	0.109
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	80.05	Mean	3.847
SD	110.3	SD	1.409
95% DL/2 (t) UCL	98.56	95% H-Stat (DL/2) UCL	214.4
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.838
		SD in Log Scale	1.002
		Mean in Original Scale	76.22
		SD in Original Scale	111.8
		95% Percentile Bootstrap UCL	96.42
		95% BCA Bootstrap UCL	108.2

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.257	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	79	
nu star	166	
A-D Test Statistic	1.017	
5% A-D Critical Value	0.773	
K-S Test Statistic	0.773	
5% K-S Critical Value	0.112	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	3
Maximum	1000
Mean	97.4
Median	79.5
SD	106.8
k star	1.789
Theta star	54.46
Nu star	350.6
AppChi2	308.2
95% Gamma Approximate UCL	110.8
95% Adjusted Gamma UCL	111

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	77.01
SD	111.4
SE of Mean	11.44
95% KM (t) UCL	96
95% KM (z) UCL	95.82
95% KM (jackknife) UCL	95.96
95% KM (bootstrap t) UCL	110.3
95% KM (BCA) UCL	98.15
95% KM (Percentile Bootstrap) UCL	97.99
95% KM (Chebyshev) UCL	126.9
97.5% KM (Chebyshev) UCL	148.4
99% KM (Chebyshev) UCL	190.8

Potential UCLs to Use	
95% KM (Percentile Bootstrap) UCL	97.99

Result (benzene)

General Statistics

Number of Valid Data	88	Number of Detected Data	20
Number of Distinct Detected Data	18	Number of Non-Detect Data	68
		Percent Non-Detects	77.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.007	Minimum Detected	-4.962
Maximum Detected	0.58	Maximum Detected	-0.545
Mean of Detected	0.0909	Mean of Detected	-3.229
SD of Detected	0.136	SD of Detected	1.326
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	86
Number treated as Detected	2
Single DL Non-Detect Percentage	97.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.646	Lilliefors Test Statistic	0.939
5% Lilliefors Critical Value	0.905	5% Lilliefors Critical Value	0.905
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0277	Mean	-4.997
SD	0.0749	SD	1.375
95% DL/2 (t) UCL	0.041	95% H-Stat (DL/2) UCL	0.0169
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-6.736
		SD in Log Scale	2.567
		Mean in Original Scale	0.0217
		SD in Original Scale	0.0738
		95% Percentile Bootstrap UCL	0.036
		95% BCA Bootstrap UCL	0.043

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.648	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.14	
nu star	25.94	
A-D Test Statistic	0.745	
5% A-D Critical Value	0.782	
K-S Test Statistic	0.782	
5% K-S Critical Value	0.202	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.752
Mean	0.22
Median	0.15
SD	0.217
k star	0.251
Theta star	0.878
Nu star	44.19
AppChi2	29.95
95% Gamma Approximate UCL	0.325
95% Adjusted Gamma UCL	0.327

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0266
SD	0.0724
SE of Mean	0.00795
95% KM (t) UCL	0.0398
95% KM (z) UCL	0.0396
95% KM (jackknife) UCL	0.0394
95% KM (bootstrap t) UCL	0.0536
95% KM (BCA) UCL	0.0426
95% KM (Percentile Bootstrap) UCL	0.041
95% KM (Chebyshev) UCL	0.0612
97.5% KM (Chebyshev) UCL	0.0762
99% KM (Chebyshev) UCL	0.106
Potential UCLs to Use	
95% KM (t) UCL	0.0398

Result (cadmium)

General Statistics

Number of Valid Data	98	Number of Detected Data	32
Number of Distinct Detected Data	14	Number of Non-Detect Data	66
		Percent Non-Detects	67.35%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.25	Minimum Detected	-1.386
Maximum Detected	4	Maximum Detected	1.386
Mean of Detected	1.388	Mean of Detected	0.177
SD of Detected	0.745	SD of Detected	0.592
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	2.7	Maximum Non-Detect	0.993

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	97
Number treated as Detected	1
Single DL Non-Detect Percentage	98.98%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.908	Lilliefors Test Statistic	0.947
5% Lilliefors Critical Value	0.93	5% Lilliefors Critical Value	0.93
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.898	Mean	-0.416
SD	0.668	SD	0.831
95% DL/2 (t) UCL	1.01	95% H-Stat (DL/2) UCL	1.353
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.519
		SD in Log Scale	0.711
		Mean in Original Scale	0.779
		SD in Original Scale	0.645
		95% Percentile Bootstrap UCL	0.895
		95% BCA Bootstrap UCL	0.902

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.174	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.437	
nu star	203.1	
A-D Test Statistic	0.497	
5% A-D Critical Value	0.752	
K-S Test Statistic	0.752	
5% K-S Critical Value	0.156	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.25	Mean	0.764
Maximum	4	SD	0.707
Mean	1.432	SE of Mean	0.083
Median	1.426	95% KM (t) UCL	0.902
SD	0.464	95% KM (z) UCL	0.9
k star	8.516	95% KM (jackknife) UCL	0.886
Theta star	0.168	95% KM (bootstrap t) UCL	0.9
Nu star	1669	95% KM (BCA) UCL	0.989
AppChi2	1575	95% KM (Percentile Bootstrap) UCL	0.956
95% Gamma Approximate UCL	1.517	95% KM (Chebyshev) UCL	1.126
95% Adjusted Gamma UCL	1.519	97.5% KM (Chebyshev) UCL	1.282
		99% KM (Chebyshev) UCL	1.59
		Potential UCLs to Use	
		95% KM (t) UCL	0.902

Note: DL/2 is not a recommended method.

Result (chromium)

General Statistics

Number of Valid Data	93	Number of Detected Data	74
Number of Distinct Detected Data	55	Number of Non-Detect Data	19
		Percent Non-Detects	20.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1	Minimum Detected	0
Maximum Detected	17	Maximum Detected	2.833
Mean of Detected	5.448	Mean of Detected	1.544
SD of Detected	3.133	SD of Detected	0.557
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	7.3	Maximum Non-Detect	1.988

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	76
Number treated as Detected	17
Single DL Non-Detect Percentage	81.72%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.142	Lilliefors Test Statistic	0.0718
5% Lilliefors Critical Value	0.103	5% Lilliefors Critical Value	0.103
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.742	Mean	1.329
SD	3.15	SD	0.738
95% DL/2 (t) UCL	5.285	95% H-Stat (DL/2) UCL	6.198
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.533	Mean in Log Scale	1.401
SD	5.246	SD in Log Scale	0.6
95% MLE (t) UCL	3.436	Mean in Original Scale	4.846
95% MLE (Tiku) UCL	4.876	SD in Original Scale	3.061
		95% Percentile Bootstrap UCL	5.367
		95% BCA Bootstrap UCL	5.412

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.339	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.632	
nu star	494.1	
A-D Test Statistic	0.537	
5% A-D Critical Value	0.757	
K-S Test Statistic	0.757	
5% K-S Critical Value	0.104	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	17
Mean	5.091
Median	4.67
SD	3.05
k star	1.194
Theta star	4.264
Nu star	222.1
AppChi2	188.6
95% Gamma Approximate UCL	5.995
95% Adjusted Gamma UCL	6.011

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	4.835
SD	3.085
SE of Mean	0.326
95% KM (t) UCL	5.377
95% KM (z) UCL	5.372
95% KM (jackknife) UCL	5.35
95% KM (bootstrap t) UCL	5.419
95% KM (BCA) UCL	5.395
95% KM (Percentile Bootstrap) UCL	5.392
95% KM (Chebyshev) UCL	6.257
97.5% KM (Chebyshev) UCL	6.873
99% KM (Chebyshev) UCL	8.082
Potential UCLs to Use	
95% KM (Percentile Bootstrap) UCL	5.392

Result (cymene)

General Statistics

Number of Valid Data	25	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	20
		Percent Non-Detects	80.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.187	Minimum Detected	-1.677
Maximum Detected	1.77	Maximum Detected	0.571
Mean of Detected	0.612	Mean of Detected	-0.863
SD of Detected	0.662	SD of Detected	0.907
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	21
Number treated as Detected	4
Single DL Non-Detect Percentage	84.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.729	Shapiro Wilk Test Statistic	0.899
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.13	Mean	-4.291
SD	0.366	SD	1.885
95% DL/2 (t) UCL	0.255	95% H-Stat (DL/2) UCL	0.189
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.119
		SD in Log Scale	2.247
		Mean in Original Scale	0.137
		SD in Original Scale	0.364
		95% Percentile Bootstrap UCL	0.27
		95% BCA Bootstrap UCL	0.341

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.728	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.841	
nu star	7.28	
A-D Test Statistic	0.474	
5% A-D Critical Value	0.687	
K-S Test Statistic	0.687	
5% K-S Critical Value	0.362	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	9.955
Mean	3.579
Median	2.858
SD	3.164
k star	0.434
Theta star	8.24
Nu star	21.72
AppChi2	12.13
95% Gamma Approximate UCL	6.41
95% Adjusted Gamma UCL	6.679

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.272
SD	0.315
SE of Mean	0.0704
95% KM (t) UCL	0.392
95% KM (z) UCL	0.388
95% KM (jackknife) UCL	0.37
95% KM (bootstrap t) UCL	0.615
95% KM (BCA) UCL	0.632
95% KM (Percentile Bootstrap) UCL	0.525
95% KM (Chebyshev) UCL	0.579
97.5% KM (Chebyshev) UCL	0.711
99% KM (Chebyshev) UCL	0.972
Potential UCLs to Use	
95% KM (t) UCL	0.392

Result (dibenzofuran)

General Statistics

Number of Valid Data	40	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	28
		Percent Non-Detects	70.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.17	Minimum Detected	-1.772
Maximum Detected	5.3	Maximum Detected	1.668
Mean of Detected	2.263	Mean of Detected	0.468
SD of Detected	1.721	SD of Detected	0.987
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	35
Number treated as Detected	5
Single DL Non-Detect Percentage	87.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Test Statistic	0.928
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.806	Mean	-1.158
SD	1.337	SD	1.253
95% DL/2 (t) UCL	1.162	95% H-Stat (DL/2) UCL	0.818
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	4.137	Mean in Log Scale	-1.153
SD	1.082	SD in Log Scale	1.424
95% MLE (t) UCL	4.425	Mean in Original Scale	0.835
95% MLE (Tiku) UCL	4.943	SD in Original Scale	1.324
		95% Percentile Bootstrap UCL	1.197
		95% BCA Bootstrap UCL	1.268

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.24	Data appear Normal at 5% Significance Level
Theta Star	1.825	
nu star	29.75	
A-D Test Statistic	0.235	
5% A-D Critical Value	0.745	
K-S Test Statistic	0.745	
5% K-S Critical Value	0.249	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.17	Mean	0.802
Maximum	6.202	SD	1.317
Mean	3.104	SE of Mean	0.218
Median	3.138	95% KM (t) UCL	1.169
SD	1.773	95% KM (z) UCL	1.16
k star	1.971	95% KM (jackknife) UCL	1.136
Theta star	1.575	95% KM (bootstrap t) UCL	1.239
Nu star	157.7	95% KM (BCA) UCL	1.745
AppChi2	129.7	95% KM (Percentile Bootstrap) UCL	1.526
95% Gamma Approximate UCL	3.775	95% KM (Chebyshev) UCL	1.752
95% Adjusted Gamma UCL	3.803	97.5% KM (Chebyshev) UCL	2.162
		99% KM (Chebyshev) UCL	2.969
		Potential UCLs to Use	
		95% KM (t) UCL	1.169
		95% KM (Percentile Bootstrap) UCL	1.526

Note: DL/2 is not a recommended method.

Result (dro)

General Statistics

Number of Valid Data	25	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	12
		Percent Non-Detects	48.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	62.7	Minimum Detected	4.138
Maximum Detected	9800	Maximum Detected	9.19
Mean of Detected	1947	Mean of Detected	6.426
SD of Detected	2723	SD of Detected	1.785
Minimum Non-Detect	50	Minimum Non-Detect	3.912
Maximum Non-Detect	50	Maximum Non-Detect	3.912

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.714	Shapiro Wilk Test Statistic	0.885
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1024	Mean	4.887
SD	2160	SD	2.066
95% DL/2 (t) UCL	1764	95% H-Stat (DL/2) UCL	2973
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.085
		SD in Log Scale	2.999
		Mean in Original Scale	1018
		SD in Original Scale	2163
		95% Percentile Bootstrap UCL	1805
		95% BCA Bootstrap UCL	2070

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.471	Data appear Gamma Distributed at 5% Significance Level
Theta Star	4130	
nu star	12.26	
A-D Test Statistic	0.636	
5% A-D Critical Value	0.786	
K-S Test Statistic	0.786	
5% K-S Critical Value	0.249	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	1042
Maximum	9800	SD	2108
Mean	1789	SE of Mean	438.8
Median	953	95% KM (t) UCL	1793
SD	2304	95% KM (z) UCL	1764
k star	0.16	95% KM (jackknife) UCL	1777
Theta star	11210	95% KM (bootstrap t) UCL	2536
Nu star	7.98	95% KM (BCA) UCL	1844
AppChi2	2.723	95% KM (Percentile Bootstrap) UCL	1798
95% Gamma Approximate UCL	5242	95% KM (Chebyshev) UCL	2955
95% Adjusted Gamma UCL	5670	97.5% KM (Chebyshev) UCL	3783
		99% KM (Chebyshev) UCL	5409
		Potential UCLs to Use	
		95% KM (BCA) UCL	1844

Note: DL/2 is not a recommended method.

Result (ethylbenzene)

General Statistics

Number of Valid Data	88	Number of Detected Data	25
Number of Distinct Detected Data	25	Number of Non-Detect Data	63
		Percent Non-Detects	71.59%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.012	Minimum Detected	-4.423
Maximum Detected	4.1	Maximum Detected	1.411
Mean of Detected	0.945	Mean of Detected	-1.298
SD of Detected	1.331	SD of Detected	1.855
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	73
Number treated as Detected	15
Single DL Non-Detect Percentage	82.95%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.699	Lilliefors Test Statistic	0.94
5% Lilliefors Critical Value	0.918	5% Lilliefors Critical Value	0.918
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.273	Mean	-4.359
SD	0.819	SD	2.249
95% DL/2 (t) UCL	0.418	95% H-Stat (DL/2) UCL	0.154
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.665
		SD in Log Scale	3.529
		Mean in Original Scale	0.271
		SD in Original Scale	0.819
		95% Percentile Bootstrap UCL	0.429
		95% BCA Bootstrap UCL	0.446

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.475	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.988	
nu star	23.77	
A-D Test Statistic	0.563	
5% A-D Critical Value	0.806	
K-S Test Statistic	0.806	
5% K-S Critical Value	0.184	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.277
Maximum	5.349	SD	0.812
Mean	1.406	SE of Mean	0.0884
Median	0.765	95% KM (t) UCL	0.424
SD	1.577	95% KM (z) UCL	0.423
k star	0.182	95% KM (jackknife) UCL	0.42
Theta star	7.709	95% KM (bootstrap t) UCL	0.504
Nu star	32.09	95% KM (BCA) UCL	0.444
AppChi2	20.14	95% KM (Percentile Bootstrap) UCL	0.428
95% Gamma Approximate UCL	2.239	95% KM (Chebyshev) UCL	0.663
95% Adjusted Gamma UCL	2.257	97.5% KM (Chebyshev) UCL	0.829
		99% KM (Chebyshev) UCL	1.157
		Potential UCLs to Use	
		95% KM (t) UCL	0.424

Note: DL/2 is not a recommended method.

Result (fluorene)

General Statistics

Number of Valid Data	65	Number of Detected Data	21
Number of Distinct Detected Data	17	Number of Non-Detect Data	44
		Percent Non-Detects	67.69%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.16	Minimum Detected	-1.833
Maximum Detected	6.1	Maximum Detected	1.808
Mean of Detected	2.131	Mean of Detected	0.391
SD of Detected	1.702	SD of Detected	0.969
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	55
Number treated as Detected	10
Single DL Non-Detect Percentage	84.62%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.873	Lilliefors Test Statistic	0.941
5% Lilliefors Critical Value	0.908	5% Lilliefors Critical Value	0.908
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.804	Mean	-1.137
SD	1.331	SD	1.227
95% DL/2 (t) UCL	1.079	95% H-Stat (DL/2) UCL	1.1
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.263
		SD in Log Scale	1.489
		Mean in Original Scale	0.813
		SD in Original Scale	1.327
		95% Percentile Bootstrap UCL	1.083
		95% BCA Bootstrap UCL	1.185

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.33	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.602	
nu star	55.87	
A-D Test Statistic	0.35	
5% A-D Critical Value	0.758	
K-S Test Statistic	0.758	
5% K-S Critical Value	0.193	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.16	Mean	0.8
Maximum	6.1	SD	1.319
Mean	2.176	SE of Mean	0.168
Median	2.11	95% KM (t) UCL	1.08
SD	0.996	95% KM (z) UCL	1.076
k star	3.912	95% KM (jackknife) UCL	1.032
Theta star	0.556	95% KM (bootstrap t) UCL	1.152
Nu star	508.6	95% KM (BCA) UCL	1.258
AppChi2	457.3	95% KM (Percentile Bootstrap) UCL	1.164
95% Gamma Approximate UCL	2.42	95% KM (Chebyshev) UCL	1.532
95% Adjusted Gamma UCL	2.426	97.5% KM (Chebyshev) UCL	1.848
		99% KM (Chebyshev) UCL	2.469
		Potential UCLs to Use	
		95% KM (t) UCL	1.08

Note: DL/2 is not a recommended method.

Result (gro)

General Statistics

Number of Valid Data	25	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	12
		Percent Non-Detects	48.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.12	Minimum Detected	0.113
Maximum Detected	335	Maximum Detected	5.814
Mean of Detected	74.04	Mean of Detected	3.247
SD of Detected	94.02	SD of Detected	1.827
Minimum Non-Detect	1	Minimum Non-Detect	0
Maximum Non-Detect	1	Maximum Non-Detect	0

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.766	Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	38.74	Mean	1.356
SD	76.33	SD	2.389
95% DL/2 (t) UCL	64.86	95% H-Stat (DL/2) UCL	254.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.895
		SD in Log Scale	3.023
		Mean in Original Scale	38.72
		SD in Original Scale	76.34
		95% Percentile Bootstrap UCL	64.98
		95% BCA Bootstrap UCL	75.26

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.502	Data appear Gamma Distributed at 5% Significance Level
Theta Star	147.4	
nu star	13.06	
A-D Test Statistic	0.338	
5% A-D Critical Value	0.783	
K-S Test Statistic	0.783	
5% K-S Critical Value	0.248	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	39.04
Maximum	335	SD	74.64
Mean	68.15	SE of Mean	15.54
Median	50.45	95% KM (t) UCL	65.62
SD	80.72	95% KM (z) UCL	64.59
k star	0.204	95% KM (jackknife) UCL	64.51
Theta star	333.4	95% KM (bootstrap t) UCL	85.57
Nu star	10.22	95% KM (BCA) UCL	68.6
AppChi2	4.079	95% KM (Percentile Bootstrap) UCL	66.09
95% Gamma Approximate UCL	170.7	95% KM (Chebyshev) UCL	106.8
95% Adjusted Gamma UCL	182.4	97.5% KM (Chebyshev) UCL	136.1
		99% KM (Chebyshev) UCL	193.6
		Potential UCLs to Use	
		95% KM (BCA) UCL	68.6

Note: DL/2 is not a recommended method.

Result (isopropylbenzene)

General Statistics

Number of Valid Data	25	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	17
		Percent Non-Detects	68.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0247	Minimum Detected	-3.701
Maximum Detected	3.1	Maximum Detected	1.131
Mean of Detected	0.545	Mean of Detected	-1.895
SD of Detected	1.048	SD of Detected	1.676
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	21
Number treated as Detected	4
Single DL Non-Detect Percentage	84.00%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.563	Shapiro Wilk Test Statistic	0.925
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.182	Mean	-4.089
SD	0.621	SD	1.879
95% DL/2 (t) UCL	0.394	95% H-Stat (DL/2) UCL	0.279
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.746
		SD in Log Scale	3.347
		Mean in Original Scale	0.176
		SD in Original Scale	0.622
		95% Percentile Bootstrap UCL	0.414
		95% BCA Bootstrap UCL	0.544

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.392	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.389	
nu star	6.275	
A-D Test Statistic	0.602	
5% A-D Critical Value	0.763	
K-S Test Statistic	0.763	
5% K-S Critical Value	0.309	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	14.11
Mean	3.088
Median	0.872
SD	4.112
k star	0.205
Theta star	15.05
Nu star	10.26
AppChi2	4.107
95% Gamma Approximate UCL	7.717
95% Adjusted Gamma UCL	8.245

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.191
SD	0.605
SE of Mean	0.129
95% KM (t) UCL	0.413
95% KM (z) UCL	0.404
95% KM (jackknife) UCL	0.399
95% KM (bootstrap t) UCL	1.397
95% KM (BCA) UCL	0.463
95% KM (Percentile Bootstrap) UCL	0.438
95% KM (Chebyshev) UCL	0.756
97.5% KM (Chebyshev) UCL	1
99% KM (Chebyshev) UCL	1.479

Potential UCLs to Use	
95% KM (t) UCL	0.413

Result (lead)

General Statistics

Number of Valid Data	118	Number of Detected Data	89
Number of Distinct Detected Data	60	Number of Non-Detect Data	29
		Percent Non-Detects	24.58%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.87	Minimum Detected	-0.139
Maximum Detected	26.3	Maximum Detected	3.27
Mean of Detected	9.676	Mean of Detected	2.046
SD of Detected	6.116	SD of Detected	0.714
Minimum Non-Detect	0.45	Minimum Non-Detect	-0.799
Maximum Non-Detect	27	Maximum Non-Detect	3.296

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	118
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.141
5% Lilliefors Critical Value	0.0939

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.0923
5% Lilliefors Critical Value	0.0939

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	8.399
SD	6.367
95% DL/2 (t) UCL	9.371
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	1.628
SD	1.264
95% H-Stat (DL/2) UCL	15.28
Log ROS Method	
Mean in Log Scale	1.789
SD in Log Scale	0.823
Mean in Original Scale	8.118
SD in Original Scale	6.089
95% Percentile Bootstrap UCL	9.105
95% BCA Bootstrap UCL	9.11

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	2.314
Theta Star	4.182
nu star	411.8
A-D Test Statistic	0.833
5% A-D Critical Value	0.763
K-S Test Statistic	0.763
5% K-S Critical Value	0.0958

Data follow Appr. Gamma Distribution at 5% Significance Level

Data Distribution Test with Detected Values Only

Data Follow Appr. Gamma Distribution at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	26.3
Mean	8.581
Median	6.925
SD	6.228
k star	0.585
Theta star	14.66
Nu star	138.1
AppChi2	112
95% Gamma Approximate UCL	10.59
95% Adjusted Gamma UCL	10.61

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	8.124
SD	6.384
SE of Mean	0.614
95% KM (t) UCL	9.142
95% KM (z) UCL	9.134
95% KM (jackknife) UCL	9.104
95% KM (bootstrap t) UCL	9.188
95% KM (BCA) UCL	9.317
95% KM (Percentile Bootstrap) UCL	9.195
95% KM (Chebyshev) UCL	10.8
97.5% KM (Chebyshev) UCL	11.96
99% KM (Chebyshev) UCL	14.24

Potential UCLs to Use

95% KM (Percentile Bootstrap) UCL	9.195

Result (naphthalene)

General Statistics

Number of Valid Data	66	Number of Detected Data	32
Number of Distinct Detected Data	32	Number of Non-Detect Data	34
		Percent Non-Detects	51.52%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0648	Minimum Detected	-2.736
Maximum Detected	14	Maximum Detected	2.639
Mean of Detected	4.465	Mean of Detected	0.82
SD of Detected	3.999	SD of Detected	1.432
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	47
Number treated as Detected	19
Single DL Non-Detect Percentage	71.21%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.891	Lilliefors Test Statistic	0.908
5% Lilliefors Critical Value	0.93	5% Lilliefors Critical Value	0.93
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.235	Mean	-0.898
SD	3.521	SD	2.089
95% DL/2 (t) UCL	2.958	95% H-Stat (DL/2) UCL	3.591
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.951
		SD in Log Scale	2.135
		Mean in Original Scale	2.223
		SD in Original Scale	3.526
		95% Percentile Bootstrap UCL	2.928
		95% BCA Bootstrap UCL	3.039

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.808	Data appear Gamma Distributed at 5% Significance Level
Theta Star	5.527	
nu star	51.71	
A-D Test Statistic	0.729	
5% A-D Critical Value	0.782	
K-S Test Statistic	0.782	
5% K-S Critical Value	0.161	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0648	Mean	2.206
Maximum	14	SD	3.51
Mean	4.417	SE of Mean	0.439
Median	4.206	95% KM (t) UCL	2.938
SD	2.814	95% KM (z) UCL	2.928
k star	1.573	95% KM (jackknife) UCL	2.903
Theta star	2.808	95% KM (bootstrap t) UCL	3.056
Nu star	207.6	95% KM (BCA) UCL	3.01
AppChi2	175.3	95% KM (Percentile Bootstrap) UCL	2.981
95% Gamma Approximate UCL	5.231	95% KM (Chebyshev) UCL	4.119
95% Adjusted Gamma UCL	5.251	97.5% KM (Chebyshev) UCL	4.947
		99% KM (Chebyshev) UCL	6.574
		Potential UCLs to Use	
		95% KM (t) UCL	2.938

Note: DL/2 is not a recommended method.

Result (n-butylbenzene)

General Statistics

Number of Valid Data	25	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	16
		Percent Non-Detects	64.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0123	Minimum Detected	-4.398
Maximum Detected	5.28	Maximum Detected	1.664
Mean of Detected	1.054	Mean of Detected	-0.841
SD of Detected	1.622	SD of Detected	1.659
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	18
Number treated as Detected	7
Single DL Non-Detect Percentage	72.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.592	Shapiro Wilk Test Statistic	0.906
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.386	Mean	-3.574
SD	1.067	SD	2.376
95% DL/2 (t) UCL	0.751	95% H-Stat (DL/2) UCL	2.185
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.991
		SD in Log Scale	2.968
		Mean in Original Scale	0.385
		SD in Original Scale	1.067
		95% Percentile Bootstrap UCL	0.763
		95% BCA Bootstrap UCL	1

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.527	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.999	
nu star	9.486	
A-D Test Statistic	0.445	
5% A-D Critical Value	0.757	
K-S Test Statistic	0.757	
5% K-S Critical Value	0.291	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	9.318
Mean	2.493
Median	0.962
SD	2.799
k star	0.275
Theta star	9.056
Nu star	13.77
AppChi2	6.411
95% Gamma Approximate UCL	5.353
95% Adjusted Gamma UCL	5.654

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.388
SD	1.045
SE of Mean	0.222
95% KM (t) UCL	0.767
95% KM (z) UCL	0.752
95% KM (jackknife) UCL	0.702
95% KM (bootstrap t) UCL	1.453
95% KM (BCA) UCL	1.022
95% KM (Percentile Bootstrap) UCL	0.84
95% KM (Chebyshev) UCL	1.354
97.5% KM (Chebyshev) UCL	1.772
99% KM (Chebyshev) UCL	2.593

Potential UCLs to Use	
95% KM (t) UCL	0.767

Result (nitrate + nitrite)

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		Log-transformed Statistics	
Minimum	0.156	Minimum of Log Data	-1.858
Maximum	3.18	Maximum of Log Data	1.157
Mean	1.321	Mean of log Data	-0.248
Median	1.208	SD of log Data	1.207
SD	1.172		
Coefficient of Variation	0.887		
Skewness	0.385		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.847	Shapiro Wilk Test Statistic	0.861
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	2.106	95% H-UCL	9.83
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.112
95% Adjusted-CLT UCL	2.063	97.5% Chebyshev (MVUE) UCL	5.277
95% Modified-t UCL	2.116	99% Chebyshev (MVUE) UCL	7.565

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.762	Data appear Normal at 5% Significance Level
Theta Star	1.733	
nu star	12.2	
Approximate Chi Square Value (.05)	5.357	Nonparametric Statistics
Adjusted Level of Significance	0.0195	95% CLT UCL 2.003
Adjusted Chi Square Value	4.267	95% Jackknife UCL 2.106
		95% Standard Bootstrap UCL 1.947
Anderson-Darling Test Statistic	0.641	95% Bootstrap-t UCL 2.194
Anderson-Darling 5% Critical Value	0.734	95% Hall's Bootstrap UCL 1.892
Kolmogorov-Smirnov Test Statistic	0.281	95% Percentile Bootstrap UCL 2.004
Kolmogorov-Smirnov 5% Critical Value	0.301	95% BCA Bootstrap UCL 2.015
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3.127
		97.5% Chebyshev(Mean, Sd) UCL 3.908
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 5.443
95% Approximate Gamma UCL	3.009	
95% Adjusted Gamma UCL	3.777	

Potential UCL to Use	Use 95% Student's-t UCL 2.106

Result (n-nitrosodiphenylamine & diphenylamine)

General Statistics

Number of Valid Data	14	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	9
		Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.8	Minimum Detected	1.03
Maximum Detected	9.4	Maximum Detected	2.241
Mean of Detected	6.64	Mean of Detected	1.817
SD of Detected	2.488	SD of Detected	0.471
Minimum Non-Detect	0.4	Minimum Non-Detect	-0.916
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	5
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	64.29%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.863
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.564	Mean	-0.239
SD	3.447	SD	1.664
95% DL/2 (t) UCL	4.196	95% H-Stat (DL/2) UCL	5.938
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.14	Mean in Log Scale	0.862
SD	5.925	SD in Log Scale	0.86
95% MLE (t) UCL	2.945	Mean in Original Scale	3.345
95% MLE (Tiku) UCL	4.374	SD in Original Scale	2.94
		95% Percentile Bootstrap UCL	4.613
		95% BCA Bootstrap UCL	4.806

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.843	Data appear Normal at 5% Significance Level	
Theta Star	2.336		
nu star	28.43		
A-D Test Statistic	0.377	**Nonparametric Statistics**	
5% A-D Critical Value	0.68	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.68	Mean	4.171
5% K-S Critical Value	0.358	SD	2.27
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.678
		95% KM (t) UCL	5.373
Assuming Gamma Distribution		95% KM (z) UCL	5.287
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.099
Minimum	2.8	95% KM (bootstrap t) UCL	4.977
Maximum	10.48	95% KM (BCA) UCL	8
Mean	7.107	95% KM (Percentile Bootstrap) UCL	7.414
Median	7.317	95% KM (Chebyshev) UCL	7.128
SD	2.286	97.5% KM (Chebyshev) UCL	8.408
k star	6.511	99% KM (Chebyshev) UCL	10.92
Theta star	1.092		
Nu star	182.3	**Potential UCLs to Use**	
AppChi2	152.1	95% KM (t) UCL	5.373
95% Gamma Approximate UCL	8.52	95% KM (Percentile Bootstrap) UCL	7.414
95% Adjusted Gamma UCL	8.73		

Note: DL/2 is not a recommended method.

Result (n-propylbenzene)

General Statistics

Number of Valid Data	25	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	18
		Percent Non-Detects	72.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0261	Minimum Detected	-3.646
Maximum Detected	5.27	Maximum Detected	1.662
Mean of Detected	1.018	Mean of Detected	-1.499
SD of Detected	1.906	SD of Detected	1.983
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	21
Number treated as Detected	4
Single DL Non-Detect Percentage	84.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.6	Shapiro Wilk Test Statistic	0.917
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.292	Mean	-4.115
SD	1.059	SD	2.027
95% DL/2 (t) UCL	0.655	95% H-Stat (DL/2) UCL	0.428
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.719
		SD in Log Scale	4.204
		Mean in Original Scale	0.286
		SD in Original Scale	1.061
		95% Percentile Bootstrap UCL	0.678
		95% BCA Bootstrap UCL	0.986

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.34	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.989	
nu star	4.766	
A-D Test Statistic	0.477	
5% A-D Critical Value	0.763	
K-S Test Statistic	0.763	
5% K-S Critical Value	0.33	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	61.63
Mean	12.59
Median	4.087
SD	17.77
k star	0.19
Theta star	66.42
Nu star	9.478
AppChi2	3.618
95% Gamma Approximate UCL	32.98
95% Adjusted Gamma UCL	35.37

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.304
SD	1.034
SE of Mean	0.223
95% KM (t) UCL	0.686
95% KM (z) UCL	0.671
95% KM (jackknife) UCL	0.658
95% KM (bootstrap t) UCL	2.459
95% KM (BCA) UCL	0.757
95% KM (Percentile Bootstrap) UCL	0.722
95% KM (Chebyshev) UCL	1.278
97.5% KM (Chebyshev) UCL	1.699
99% KM (Chebyshev) UCL	2.527

Potential UCLs to Use	
95% KM (t) UCL	0.686

Result (petroleum hydrocarbons)

General Statistics

Number of Valid Data	25	Number of Detected Data	20
Number of Distinct Detected Data	18	Number of Non-Detect Data	5
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	21	Minimum Detected	3.045
Maximum Detected	14000	Maximum Detected	9.547
Mean of Detected	4334	Mean of Detected	7.398
SD of Detected	4443	SD of Detected	1.865
Minimum Non-Detect	11	Minimum Non-Detect	2.398
Maximum Non-Detect	13	Maximum Non-Detect	2.565

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	5
Number treated as Detected	20
Single DL Non-Detect Percentage	20.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.862	Shapiro Wilk Test Statistic	0.907
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3468	Mean	6.28
SD	4330	SD	2.823
95% DL/2 (t) UCL	4950	95% H-Stat (DL/2) UCL	266859
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2843	Mean in Log Scale	6.593
SD	5020	SD in Log Scale	2.35
95% MLE (t) UCL	4561	Mean in Original Scale	3474
95% MLE (Tiku) UCL	4564	SD in Original Scale	4325
		95% Percentile Bootstrap UCL	4911
		95% BCA Bootstrap UCL	5086

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.568	Data appear Gamma Distributed at 5% Significance Level
Theta Star	7632	
nu star	22.71	
A-D Test Statistic	0.373	
5% A-D Critical Value	0.791	
K-S Test Statistic	0.791	
5% K-S Critical Value	0.203	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	3471
Maximum	14000	SD	4240
Mean	3467	SE of Mean	870.1
Median	960	95% KM (t) UCL	4960
SD	4331	95% KM (z) UCL	4903
k star	0.136	95% KM (jackknife) UCL	4947
Theta star	25563	95% KM (bootstrap t) UCL	5270
Nu star	6.782	95% KM (BCA) UCL	4970
AppChi2	2.052	95% KM (Percentile Bootstrap) UCL	4904
95% Gamma Approximate UCL	11461	95% KM (Chebyshev) UCL	7264
95% Adjusted Gamma UCL	12513	97.5% KM (Chebyshev) UCL	8905
		99% KM (Chebyshev) UCL	12128
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	7264

Note: DL/2 is not a recommended method.

Result (phenanthrene)

General Statistics

Number of Valid Data	65	Number of Detected Data	27
Number of Distinct Detected Data	23	Number of Non-Detect Data	38
		Percent Non-Detects	58.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.36	Minimum Detected	-1.022
Maximum Detected	18	Maximum Detected	2.89
Mean of Detected	6.231	Mean of Detected	1.296
SD of Detected	5.239	SD of Detected	1.232
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	41
Number treated as Detected	24
Single DL Non-Detect Percentage	63.08%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.9
5% Lilliefors Critical Value	0.923

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.899
5% Lilliefors Critical Value	0.923

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.674
SD	4.504
95% DL/2 (t) UCL	3.606
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-0.6
SD	1.799
95% H-Stat (DL/2) UCL	1.825
Log ROS Method	
Mean in Log Scale	-0.629
SD in Log Scale	2.012
Mean in Original Scale	2.718
SD in Original Scale	4.481
95% Percentile Bootstrap UCL	3.683
95% BCA Bootstrap UCL	3.748

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.979
Theta Star	6.366
nu star	52.86
A-D Test Statistic	0.571
5% A-D Critical Value	0.772
K-S Test Statistic	0.772
5% K-S Critical Value	0.173

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.36
Maximum	18
Mean	6.418
Median	5.912
SD	3.843
k star	1.922
Theta star	3.34
Nu star	249.8
AppChi2	214.2
95% Gamma Approximate UCL	7.484
95% Adjusted Gamma UCL	7.51

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	2.799
SD	4.399
SE of Mean	0.556
95% KM (t) UCL	3.727
95% KM (z) UCL	3.714
95% KM (jackknife) UCL	3.707
95% KM (bootstrap t) UCL	3.859
95% KM (BCA) UCL	3.856
95% KM (Percentile Bootstrap) UCL	3.731
95% KM (Chebyshev) UCL	5.223
97.5% KM (Chebyshev) UCL	6.271
99% KM (Chebyshev) UCL	8.331

Potential UCLs to Use

95% KM (t) UCL	3.727

Result (phosphorus)

General Statistics

Number of Valid Observations	24	Number of Distinct Observations	24

Raw Statistics		Log-transformed Statistics	
Minimum	7.15	Minimum of Log Data	1.967
Maximum	270	Maximum of Log Data	5.598
Mean	129.3	Mean of log Data	4.664
Median	133	SD of log Data	0.775
SD	65.71		
Coefficient of Variation	0.508		
Skewness	0.0868		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.98	Shapiro Wilk Test Statistic	0.827
Shapiro Wilk Critical Value	0.916	Shapiro Wilk Critical Value	0.916
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	152.2	95% H-UCL	205.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	246.9
95% Adjusted-CLT UCL	151.6	97.5% Chebyshev (MVUE) UCL	292.7
95% Modified-t UCL	152.3	99% Chebyshev (MVUE) UCL	382.7

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.375	Data appear Normal at 5% Significance Level
Theta Star	54.43	
nu star	114	
Approximate Chi Square Value (.05)	90.35	Nonparametric Statistics
Adjusted Level of Significance	0.0392	95% CLT UCL 151.3
Adjusted Chi Square Value	88.87	95% Jackknife UCL 152.2
		95% Standard Bootstrap UCL 151.3
Anderson-Darling Test Statistic	0.618	95% Bootstrap-t UCL 153.6
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL 152
Kolmogorov-Smirnov Test Statistic	0.154	95% Percentile Bootstrap UCL 149.5
Kolmogorov-Smirnov 5% Critical Value	0.18	95% BCA Bootstrap UCL 152.2
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 187.7
		97.5% Chebyshev(Mean, Sd) UCL 213
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 262.7
95% Approximate Gamma UCL	163.1	
95% Adjusted Gamma UCL	165.8	

Potential UCL to Use	Use 95% Student's-t UCL 152.2

Result (pyrene)

General Statistics

Number of Valid Data	65	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	60
		Percent Non-Detects	92.31%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.27	Minimum Detected	-1.309
Maximum Detected	0.732	Maximum Detected	-0.312
Mean of Detected	0.565	Mean of Detected	-0.629
SD of Detected	0.186	SD of Detected	0.407
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.89	Lilliefors Test Statistic	0.823
5% Lilliefors Critical Value	0.762	5% Lilliefors Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.237	Mean	-1.712
SD	0.291	SD	0.59
95% DL/2 (t) UCL	0.298	95% H-Stat (DL/2) UCL	0.244
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.615
		SD in Log Scale	0.997
		Mean in Original Scale	0.122
		SD in Original Scale	0.151
		95% Percentile Bootstrap UCL	0.154
		95% BCA Bootstrap UCL	0.163

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.682	**Data appear Normal at 5% Significance Level**
Theta Star	0.153	
nu star	36.82	
A-D Test Statistic	0.488	
5% A-D Critical Value	0.679	
K-S Test Statistic	0.679	
5% K-S Critical Value	0.358	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.27	Mean	0.294
Maximum	1.515	SD	0.0931
Mean	1.038	SE of Mean	0.0132
Median	1.101	95% KM (t) UCL	0.316
SD	0.338	95% KM (z) UCL	0.316
k star	6.903	95% KM (jackknife) UCL	0.437
Theta star	0.15	95% KM (bootstrap t) UCL	0.309
Nu star	897.4	95% KM (BCA) UCL	0.683
AppChi2	828.9	95% KM (Percentile Bootstrap) UCL	0.644
95% Gamma Approximate UCL	1.124	95% KM (Chebyshev) UCL	0.351
95% Adjusted Gamma UCL	1.126	97.5% KM (Chebyshev) UCL	0.376
		99% KM (Chebyshev) UCL	0.425
		Potential UCLs to Use	
		95% KM (t) UCL	0.316
		95% KM (Percentile Bootstrap) UCL	0.644

Note: DL/2 is not a recommended method.

Result (sec-butylbenzene)

General Statistics

Number of Valid Data	25	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	16
		Percent Non-Detects	64.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0132	Minimum Detected	-4.328
Maximum Detected	5.57	Maximum Detected	1.717
Mean of Detected	1.095	Mean of Detected	-0.801
SD of Detected	1.711	SD of Detected	1.655
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	18
Number treated as Detected	7
Single DL Non-Detect Percentage	72.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.578	Shapiro Wilk Test Statistic	0.892
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.401	Mean	-3.56
SD	1.122	SD	2.392
95% DL/2 (t) UCL	0.785	95% H-Stat (DL/2) UCL	2.357
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.928
		SD in Log Scale	2.948
		Mean in Original Scale	0.4
		SD in Original Scale	1.122
		95% Percentile Bootstrap UCL	0.792
		95% BCA Bootstrap UCL	1.06

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.527	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.076	
nu star	9.495	
A-D Test Statistic	0.527	
5% A-D Critical Value	0.757	
K-S Test Statistic	0.757	
5% K-S Critical Value	0.291	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	9.701
Mean	2.595
Median	1.04
SD	2.919
k star	0.275
Theta star	9.45
Nu star	13.73
AppChi2	6.387
95% Gamma Approximate UCL	5.578
95% Adjusted Gamma UCL	5.892

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.403
SD	1.098
SE of Mean	0.233
95% KM (t) UCL	0.802
95% KM (z) UCL	0.786
95% KM (jackknife) UCL	0.743
95% KM (bootstrap t) UCL	1.551
95% KM (BCA) UCL	1.134
95% KM (Percentile Bootstrap) UCL	0.931
95% KM (Chebyshev) UCL	1.418
97.5% KM (Chebyshev) UCL	1.858
99% KM (Chebyshev) UCL	2.721
Potential UCLs to Use	
95% KM (t) UCL	0.802

Result (selenium)

General Statistics

Number of Valid Data	98	Number of Detected Data	31
Number of Distinct Detected Data	20	Number of Non-Detect Data	67
		Percent Non-Detects	68.37%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.8	Minimum Detected	-0.223
Maximum Detected	95	Maximum Detected	4.554
Mean of Detected	46.29	Mean of Detected	3.416
SD of Detected	26.57	SD of Detected	1.27
Minimum Non-Detect	0.3	Minimum Non-Detect	-1.204
Maximum Non-Detect	1	Maximum Non-Detect	0

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	68
Number treated as Detected	30
Single DL Non-Detect Percentage	69.39%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.939
5% Lilliefors Critical Value	0.929

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.727
5% Lilliefors Critical Value	0.929

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	14.83
SD	26.09
95% DL/2 (t) UCL	19.21
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	0.197
SD	2.316
95% H-Stat (DL/2) UCL	37.04
Log ROS Method	
Mean in Log Scale	1.408
SD in Log Scale	1.697
Mean in Original Scale	16.15
SD in Original Scale	25.39
95% Percentile Bootstrap UCL	20.37
95% BCA Bootstrap UCL	20.95

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.227
Theta Star	37.71
nu star	76.1
A-D Test Statistic	2.358
5% A-D Critical Value	0.768
K-S Test Statistic	0.768
5% K-S Critical Value	0.161

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.8
Maximum	95
Mean	46.4
Median	46.54
SD	14.87
k star	3.798
Theta star	12.22
Nu star	744.4
AppChi2	682.1
95% Gamma Approximate UCL	50.64
95% Adjusted Gamma UCL	50.7

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	15.19
SD	25.76
SE of Mean	2.645
95% KM (t) UCL	19.58
95% KM (z) UCL	19.54
95% KM (jackknife) UCL	19.06
95% KM (bootstrap t) UCL	19.93
95% KM (BCA) UCL	21.3
95% KM (Percentile Bootstrap) UCL	20.12
95% KM (Chebyshev) UCL	26.72
97.5% KM (Chebyshev) UCL	31.71
99% KM (Chebyshev) UCL	41.51

Potential UCLs to Use

95% KM (t) UCL	19.58
95% KM (Percentile Bootstrap) UCL	20.12

Result (sodium)

General Statistics

Number of Valid Observations	24	Number of Distinct Observations	24

Raw Statistics		Log-transformed Statistics	
Minimum	232	Minimum of Log Data	5.447
Maximum	2030	Maximum of Log Data	7.616
Mean	823.6	Mean of log Data	6.543
Median	647.5	SD of log Data	0.597
SD	500.5		
Coefficient of Variation	0.608		
Skewness	0.931		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.877	Shapiro Wilk Test Statistic	0.957
Shapiro Wilk Critical Value	0.916	Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	998.7	95% H-UCL	1072
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1284
95% Adjusted-CLT UCL	1012	97.5% Chebyshev (MVUE) UCL	1484
95% Modified-t UCL	1002	99% Chebyshev (MVUE) UCL	1877

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.725	Data appear Gamma Distributed at 5% Significance Level
Theta Star	302.2	
nu star	130.8	
Approximate Chi Square Value (.05)	105.4	Nonparametric Statistics
Adjusted Level of Significance	0.0392	95% CLT UCL 991.6
Adjusted Chi Square Value	103.8	95% Jackknife UCL 998.7
		95% Standard Bootstrap UCL 986.2
Anderson-Darling Test Statistic	0.652	95% Bootstrap-t UCL 1029
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL 1009
Kolmogorov-Smirnov Test Statistic	0.149	95% Percentile Bootstrap UCL 999.9
Kolmogorov-Smirnov 5% Critical Value	0.179	95% BCA Bootstrap UCL 1005
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1269
		97.5% Chebyshev(Mean, Sd) UCL 1462
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1840
95% Approximate Gamma UCL	1022	
95% Adjusted Gamma UCL	1038	

Potential UCL to Use	Use 95% Approximate Gamma UCL 1022

Result (tph)

General Statistics

Number of Valid Data	25	Number of Detected Data	19
Number of Distinct Detected Data	17	Number of Non-Detect Data	6
		Percent Non-Detects	24.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	21	Minimum Detected	3.045
Maximum Detected	14000	Maximum Detected	9.547
Mean of Detected	4294	Mean of Detected	7.339
SD of Detected	4561	SD of Detected	1.896
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	13	Maximum Non-Detect	2.565

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	6
Number treated as Detected	19
Single DL Non-Detect Percentage	24.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.845	Shapiro Wilk Test Statistic	0.914
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3265	Mean	6.003
SD	4370	SD	2.93
95% DL/2 (t) UCL	4760	95% H-Stat (DL/2) UCL	292208
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2445	Mean in Log Scale	6.346
SD	5256	SD in Log Scale	2.456
95% MLE (t) UCL	4243	Mean in Original Scale	3270
95% MLE (Tiku) UCL	4276	SD in Original Scale	4366
		95% Percentile Bootstrap UCL	4730
		95% BCA Bootstrap UCL	4944

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.542	Data appear Gamma Distributed at 5% Significance Level
Theta Star	7925	
nu star	20.59	
A-D Test Statistic	0.374	
5% A-D Critical Value	0.793	
K-S Test Statistic	0.793	
5% K-S Critical Value	0.208	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	14000
Mean	3268
Median	770
SD	4367
k star	0.134
Theta star	24332
Nu star	6.716
AppChi2	2.016
95% Gamma Approximate UCL	10887
95% Adjusted Gamma UCL	11894

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	3268
SD	4279
SE of Mean	879.2
95% KM (t) UCL	4772
95% KM (z) UCL	4714
95% KM (jackknife) UCL	4756
95% KM (bootstrap t) UCL	5160
95% KM (BCA) UCL	4795
95% KM (Percentile Bootstrap) UCL	4763
95% KM (Chebyshev) UCL	7101
97.5% KM (Chebyshev) UCL	8759
99% KM (Chebyshev) UCL	12016

Potential UCLs to Use	
95% KM (Chebyshev) UCL	7101

Result (xylenes)

General Statistics

Number of Valid Data	63	Number of Detected Data	27
Number of Distinct Detected Data	25	Number of Non-Detect Data	36
		Percent Non-Detects	57.14%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0059	Minimum Detected	-5.133
Maximum Detected	7	Maximum Detected	1.946
Mean of Detected	0.656	Mean of Detected	-2.258
SD of Detected	1.423	SD of Detected	2.079
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	48
Number treated as Detected	15
Single DL Non-Detect Percentage	76.19%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.505	Lilliefors Test Statistic	0.935
5% Lilliefors Critical Value	0.923	5% Lilliefors Critical Value	0.923
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.283	Mean	-4.314
SD	0.977	SD	2.263
95% DL/2 (t) UCL	0.489	95% H-Stat (DL/2) UCL	0.177
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.638
		SD in Log Scale	3.598
		Mean in Original Scale	0.282
		SD in Original Scale	0.978
		95% Percentile Bootstrap UCL	0.508
		95% BCA Bootstrap UCL	0.623

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.348	Data appear Lognormal at 5% Significance Level
Theta Star	1.885	
nu star	18.8	
A-D Test Statistic	1.385	
5% A-D Critical Value	0.838	
K-S Test Statistic	0.838	
5% K-S Critical Value	0.181	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.285
Maximum	7	SD	0.969
Mean	0.668	SE of Mean	0.124
Median	0.12	95% KM (t) UCL	0.493
SD	1.14	95% KM (z) UCL	0.489
k star	0.142	95% KM (jackknife) UCL	0.49
Theta star	4.689	95% KM (bootstrap t) UCL	0.818
Nu star	17.95	95% KM (BCA) UCL	0.502
AppChi2	9.353	95% KM (Percentile Bootstrap) UCL	0.499
95% Gamma Approximate UCL	1.282	95% KM (Chebyshev) UCL	0.827
95% Adjusted Gamma UCL	1.302	97.5% KM (Chebyshev) UCL	1.062
		99% KM (Chebyshev) UCL	1.523
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	1.062

Note: DL/2 is not a recommended method.

Result (zinc)

General Statistics

Number of Valid Observations	26	Number of Distinct Observations	25

Raw Statistics		Log-transformed Statistics	
Minimum	3.64	Minimum of Log Data	1.292
Maximum	46.7	Maximum of Log Data	3.844
Mean	17.13	Mean of log Data	2.641
Median	16.4	SD of log Data	0.673
SD	11.01		
Coefficient of Variation	0.643		
Skewness	1.374		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.855	Shapiro Wilk Test Statistic	0.935
Shapiro Wilk Critical Value	0.92	Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	20.82	95% H-UCL	23.36
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	28.13
95% Adjusted-CLT UCL	21.3	97.5% Chebyshev (MVUE) UCL	32.77
95% Modified-t UCL	20.91	99% Chebyshev (MVUE) UCL	41.88

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.377	Data appear Gamma Distributed at 5% Significance Level
Theta Star	7.205	
nu star	123.6	
Approximate Chi Square Value (.05)	98.94	**Nonparametric Statistics**
Adjusted Level of Significance	0.0398	95% CLT UCL 20.68
Adjusted Chi Square Value	97.48	95% Jackknife UCL 20.82
		95% Standard Bootstrap UCL 20.59
Anderson-Darling Test Statistic	0.628	95% Bootstrap-t UCL 21.81
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL 22.16
Kolmogorov-Smirnov Test Statistic	0.166	95% Percentile Bootstrap UCL 20.93
Kolmogorov-Smirnov 5% Critical Value	0.173	95% BCA Bootstrap UCL 21.08
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 26.54
		97.5% Chebyshev(Mean, Sd) UCL 30.61
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 38.61
95% Approximate Gamma UCL	21.4	
95% Adjusted Gamma UCL	21.72	

Potential UCL to Use		
	Use 95% Approximate Gamma UCL	21.4

Attachment C – ProUCL Output for SWMU 143

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (arsenic)

General Statistics

Number of Valid Data	14	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	5
		Percent Non-Detects	35.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.59	Minimum Detected	-0.528
Maximum Detected	9.64	Maximum Detected	2.266
Mean of Detected	3.994	Mean of Detected	0.937
SD of Detected	3.35	SD of Detected	1.121
Minimum Non-Detect	0.49	Minimum Non-Detect	-0.713
Maximum Non-Detect	3.47	Maximum Non-Detect	1.244

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	4
Single DL Non-Detect Percentage	71.43%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.875	Shapiro Wilk Test Statistic	0.848
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.958	Mean	0.51
SD	3.029	SD	1.208
95% DL/2 (t) UCL	4.392	95% H-Stat (DL/2) UCL	7.997
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.606	Mean in Log Scale	0.244
SD	5.151	SD in Log Scale	1.347
95% MLE (t) UCL	3.044	Mean in Original Scale	2.718
95% MLE (Tiku) UCL	4.991	SD in Original Scale	3.175
		95% Percentile Bootstrap UCL	4.074
		95% BCA Bootstrap UCL	4.224

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.912	Data appear Normal at 5% Significance Level	
Theta Star	4.382		
nu star	16.41		
A-D Test Statistic	0.526	**Nonparametric Statistics**	
5% A-D Critical Value	0.739	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.739	Mean	2.828
5% K-S Critical Value	0.285	SD	2.998
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.855
		95% KM (t) UCL	4.342
Assuming Gamma Distribution		95% KM (z) UCL	4.234
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.31
Minimum	0.424	95% KM (bootstrap t) UCL	4.737
Maximum	9.64	95% KM (BCA) UCL	4.51
Mean	3.299	95% KM (Percentile Bootstrap) UCL	4.341
Median	3.08	95% KM (Chebyshev) UCL	6.555
SD	2.931	97.5% KM (Chebyshev) UCL	8.167
k star	0.988	99% KM (Chebyshev) UCL	11.33
Theta star	3.338		
Nu star	27.67	**Potential UCLs to Use**	
AppChi2	16.67	95% KM (t) UCL	4.342
95% Gamma Approximate UCL	5.476	95% KM (Percentile Bootstrap) UCL	4.341
95% Adjusted Gamma UCL	5.872		

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Data	14	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	5
		Percent Non-Detects	35.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	47.4	Minimum Detected	3.859
Maximum Detected	179	Maximum Detected	5.187
Mean of Detected	90.38	Mean of Detected	4.441
SD of Detected	37.27	SD of Detected	0.363
Minimum Non-Detect	92	Minimum Non-Detect	4.522
Maximum Non-Detect	96	Maximum Non-Detect	4.564

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	11
Number treated as Detected	3
Single DL Non-Detect Percentage	78.57%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.809
5% Shapiro Wilk Critical Value	0.829

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	74.89
SD	36.33
95% DL/2 (t) UCL	92.08
Maximum Likelihood Estimate(MLE) Method	
Mean	44.85
SD	62.11
95% MLE (t) UCL	74.24
95% MLE (Tiku) UCL	112.6

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	4.23
SD	0.409
95% H-Stat (DL/2) UCL	116.7
Log ROS Method	
Mean in Log Scale	4.366
SD in Log Scale	0.304
Mean in Original Scale	82.62
SD in Original Scale	31.18
95% Percentile Bootstrap UCL	97.31
95% BCA Bootstrap UCL	103.9

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	5.503
Theta Star	16.42
nu star	99.06
A-D Test Statistic	0.505
5% A-D Critical Value	0.722
K-S Test Statistic	0.722
5% K-S Critical Value	0.28

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	47.4
Maximum	179
Mean	90.39
Median	87.89
SD	29.3
k star	9.881
Theta star	9.147
Nu star	276.7
AppChi2	239.2
95% Gamma Approximate UCL	104.6
95% Adjusted Gamma UCL	106.6

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	82.82
SD	30.74
SE of Mean	9.105
95% KM (t) UCL	98.95
95% KM (z) UCL	97.8
95% KM (jackknife) UCL	98.91
95% KM (bootstrap t) UCL	107.6
95% KM (BCA) UCL	98.66
95% KM (Percentile Bootstrap) UCL	98.64
95% KM (Chebyshev) UCL	122.5
97.5% KM (Chebyshev) UCL	139.7
99% KM (Chebyshev) UCL	173.4

Potential UCLs to Use

95% KM (Percentile Bootstrap) UCL	98.64

Result (lead)

General Statistics

Number of Valid Data	14	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	9
		Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.65	Minimum Detected	1.295
Maximum Detected	14.7	Maximum Detected	2.688
Mean of Detected	7.036	Mean of Detected	1.82
SD of Detected	4.458	SD of Detected	0.544
Minimum Non-Detect	1.28	Minimum Non-Detect	0.247
Maximum Non-Detect	24	Maximum Non-Detect	3.178

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	14
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.791
5% Shapiro Wilk Critical Value	0.762

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.907
5% Shapiro Wilk Critical Value	0.762

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	7.101
SD	5.001
95% DL/2 (t) UCL	9.468
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	1.59
SD	1.021
95% H-Stat (DL/2) UCL	32.92
Log ROS Method	
Mean in Log Scale	1.125
SD in Log Scale	0.786
Mean in Original Scale	4.148
SD in Original Scale	3.64
95% Percentile Bootstrap UCL	5.935
95% BCA Bootstrap UCL	6.3

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.726
Theta Star	4.077
nu star	17.26
A-D Test Statistic	0.429
5% A-D Critical Value	0.681
K-S Test Statistic	0.681
5% K-S Critical Value	0.358

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	3.65
Maximum	20.08
Mean	8.745
Median	6.052
SD	5.499
k star	2.641
Theta star	3.311
Nu star	73.96
AppChi2	55.15
95% Gamma Approximate UCL	11.73
95% Adjusted Gamma UCL	12.2

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	5.531
SD	3.415
SE of Mean	1.273
95% KM (t) UCL	7.785
95% KM (z) UCL	7.625
95% KM (jackknife) UCL	7.59
95% KM (bootstrap t) UCL	10.8
95% KM (BCA) UCL	8.886
95% KM (Percentile Bootstrap) UCL	8.327
95% KM (Chebyshev) UCL	11.08
97.5% KM (Chebyshev) UCL	13.48
99% KM (Chebyshev) UCL	18.19

Potential UCLs to Use

95% KM (t) UCL	7.785
95% KM (Percentile Bootstrap) UCL	8.327

Result (silver)

General Statistics

Number of Valid Data	14	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	9
		Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.84	Minimum Detected	2.179
Maximum Detected	74.8	Maximum Detected	4.315
Mean of Detected	29.29	Mean of Detected	3.051
SD of Detected	27.5	SD of Detected	0.884
Minimum Non-Detect	4.6	Minimum Non-Detect	1.526
Maximum Non-Detect	34.7	Maximum Non-Detect	3.547

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	2
Single DL Non-Detect Percentage	85.71%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.818	Shapiro Wilk Test Statistic	0.93
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	15.29	Mean	2.134
SD	19.43	SD	1.136
95% DL/2 (t) UCL	24.48	95% H-Stat (DL/2) UCL	36.58
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.687
		SD in Log Scale	1.218
		Mean in Original Scale	12.23
		SD in Original Scale	20.19
		95% Percentile Bootstrap UCL	21.3
		95% BCA Bootstrap UCL	26.66

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.805	Data appear Normal at 5% Significance Level	
Theta Star	36.4		
nu star	8.047		
A-D Test Statistic	0.357	**Nonparametric Statistics**	
5% A-D Critical Value	0.686	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.686	Mean	16.4
5% K-S Critical Value	0.361	SD	17.6
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	5.275
		95% KM (t) UCL	25.75
Assuming Gamma Distribution		95% KM (z) UCL	25.08
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	24.42
Minimum	8.84	95% KM (bootstrap t) UCL	45.94
Maximum	74.8	95% KM (BCA) UCL	38.12
Mean	34.27	95% KM (Percentile Bootstrap) UCL	29.15
Median	37.59	95% KM (Chebyshev) UCL	39.4
SD	18.32	97.5% KM (Chebyshev) UCL	49.35
k star	2.622	99% KM (Chebyshev) UCL	68.89
Theta star	13.07		
Nu star	73.41	**Potential UCLs to Use**	
AppChi2	54.68	95% KM (t) UCL	25.75
95% Gamma Approximate UCL	46.02	95% KM (Percentile Bootstrap) UCL	29.15
95% Adjusted Gamma UCL	47.89		

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (1,1-dichloroethane)

General Statistics

Number of Valid Data	70	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	55
		Percent Non-Detects	78.57%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00109	Minimum Detected	-6.822
Maximum Detected	0.0046	Maximum Detected	-5.382
Mean of Detected	0.00207	Mean of Detected	-6.27
SD of Detected	0.000994	SD of Detected	0.416
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.811	Lilliefors Test Statistic	0.926
5% Lilliefors Critical Value	0.881	5% Lilliefors Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000835	Mean	-7.316
SD	0.000787	SD	0.581
95% DL/2 (t) UCL	0.000992	95% H-Stat (DL/2) UCL	0.000776
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.605
		SD in Log Scale	0.969
		Mean in Original Scale	0.000783
		SD in Original Scale	0.000844
		95% Percentile Bootstrap UCL	0.000946
		95% BCA Bootstrap UCL	0.000992

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	4.725	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.000437	
nu star	141.8	
A-D Test Statistic	0.61	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.222	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.000409	Mean	0.0013
Maximum	0.00517	SD	0.000598
Mean	0.00333	SE of Mean	7.4E-05
Median	0.0036	95% KM (t) UCL	0.00142
SD	0.00132	95% KM (z) UCL	0.00142
k star	4.58	95% KM (jackknife) UCL	0.00141
Theta star	0.000727	95% KM (bootstrap t) UCL	0.00148
Nu star	641.1	95% KM (BCA) UCL	0.0017
AppChi2	583.4	95% KM (Percentile Bootstrap) UCL	0.00155
95% Gamma Approximate UCL	0.00366	95% KM (Chebyshev) UCL	0.00162
95% Adjusted Gamma UCL	0.00367	97.5% KM (Chebyshev) UCL	0.00176
		99% KM (Chebyshev) UCL	0.00204
		Potential UCLs to Use	
		95% KM (t) UCL	0.00142

Note: DL/2 is not a recommended method.

Result (1,1-dichloroethylene)

General Statistics

Number of Valid Data	70	Number of Detected Data	13
Number of Distinct Detected Data	12	Number of Non-Detect Data	57
		Percent Non-Detects	81.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00129	Minimum Detected	-6.653
Maximum Detected	0.00515	Maximum Detected	-5.269
Mean of Detected	0.00269	Mean of Detected	-6.082
SD of Detected	0.00162	SD of Detected	0.587
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.749	Lilliefors Test Statistic	0.77
5% Lilliefors Critical Value	0.866	5% Lilliefors Critical Value	0.866
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000907	Mean	-7.319
SD	0.00109	SD	0.643
95% DL/2 (t) UCL	0.00113	95% H-Stat (DL/2) UCL	0.000807
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-8.045
		SD in Log Scale	1.351
		Mean in Original Scale	0.000757
		SD in Original Scale	0.00118
		95% Percentile Bootstrap UCL	0.001
		95% BCA Bootstrap UCL	0.00103

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.515	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.00107	
nu star	65.39	
A-D Test Statistic	1.51	
5% A-D Critical Value	0.739	
K-S Test Statistic	0.739	
5% K-S Critical Value	0.238	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	7.08E-05	Mean	0.00155
Maximum	0.0103	SD	0.000865
Mean	0.00591	SE of Mean	0.000108
Median	0.00617	95% KM (t) UCL	0.00173
SD	0.00295	95% KM (z) UCL	0.00173
k star	2.358	95% KM (jackknife) UCL	0.00171
Theta star	0.00251	95% KM (bootstrap t) UCL	0.00178
Nu star	330.1	95% KM (BCA) UCL	0.00179
AppChi2	289	95% KM (Percentile Bootstrap) UCL	0.00176
95% Gamma Approximate UCL	0.00675	95% KM (Chebyshev) UCL	0.00202
95% Adjusted Gamma UCL	0.00677	97.5% KM (Chebyshev) UCL	0.00222
		99% KM (Chebyshev) UCL	0.00262
		Potential UCLs to Use	
		95% KM (t) UCL	0.00173
		95% KM (% Bootstrap) UCL	0.00176

Note: DL/2 is not a recommended method.

Result (2,6-dnt / 2,4-dnt)

General Statistics

Number of Valid Data	49	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	43
		Percent Non-Detects	87.76%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00063	Minimum Detected	-7.37
Maximum Detected	0.000939	Maximum Detected	-6.971
Mean of Detected	0.000776	Mean of Detected	-7.172
SD of Detected	0.000122	SD of Detected	0.156
Minimum Non-Detect	0.0005	Minimum Non-Detect	-7.601
Maximum Non-Detect	0.0005	Maximum Non-Detect	-7.601

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.926	Shapiro Wilk Test Statistic	0.935
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000314	Mean	-8.157
SD	0.000179	SD	0.375
95% DL/2 (t) UCL	0.000357	95% H-Stat (DL/2) UCL	0.000321
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.939
		SD in Log Scale	0.458
		Mean in Original Scale	0.000395
		SD in Original Scale	0.000187
		95% Percentile Bootstrap UCL	0.00044
		95% BCA Bootstrap UCL	0.000446

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	24.66	Data appear Normal at 5% Significance Level
Theta Star	3.15E-05	
nu star	295.9	
A-D Test Statistic	0.318	
5% A-D Critical Value	0.697	
K-S Test Statistic	0.697	
5% K-S Critical Value	0.332	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.000593	Mean	0.000648
Maximum	0.00135	SD	6.17E-05
Mean	0.00109	SE of Mean	9.66E-06
Median	0.00115	95% KM (t) UCL	0.000664
SD	0.000215	95% KM (z) UCL	0.000664
k star	21.5	95% KM (jackknife) UCL	0.000689
Theta star	5.06E-05	95% KM (bootstrap t) UCL	0.000666
Nu star	2107	95% KM (BCA) UCL	0.000797
AppChi2	2002	95% KM (Percentile Bootstrap) UCL	0.000722
95% Gamma Approximate UCL	0.00115	95% KM (Chebyshev) UCL	0.00069
95% Adjusted Gamma UCL	0.00115	97.5% KM (Chebyshev) UCL	0.000708
		99% KM (Chebyshev) UCL	0.000744
		Potential UCLs to Use	
		95% KM (t) UCL	0.000664
		95% KM (Percentile Bootstrap) UCL	0.000722

Note: DL/2 is not a recommended method.

Result (aluminum)

General Statistics

Number of Valid Data	47	Number of Detected Data	19
Number of Distinct Detected Data	18	Number of Non-Detect Data	28
		Percent Non-Detects	59.57%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.051	Minimum Detected	-2.976
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	0.772	Mean of Detected	-1.179
SD of Detected	1.066	SD of Detected	1.415
Minimum Non-Detect	0.03	Minimum Non-Detect	-3.507
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	32
Number treated as Detected	15
Single DL Non-Detect Percentage	68.09%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.719	Shapiro Wilk Test Statistic	0.907
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.328	Mean	-2.748
SD	0.763	SD	1.638
95% DL/2 (t) UCL	0.514	95% H-Stat (DL/2) UCL	0.304
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.639
		SD in Log Scale	2.52
		Mean in Original Scale	0.319
		SD in Original Scale	0.766
		95% Percentile Bootstrap UCL	0.515
		95% BCA Bootstrap UCL	0.558

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.593	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	1.302	
nu star	22.52	
A-D Test Statistic	1.05	
5% A-D Critical Value	0.787	
K-S Test Statistic	0.787	
5% K-S Critical Value	0.207	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	3.9
Mean	0.892
Median	0.426
SD	1.02
k star	0.207
Theta star	4.32
Nu star	19.42
AppChi2	10.42
95% Gamma Approximate UCL	1.662
95% Adjusted Gamma UCL	1.697

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.343
SD	0.748
SE of Mean	0.112
95% KM (t) UCL	0.531
95% KM (z) UCL	0.527
95% KM (jackknife) UCL	0.526
95% KM (bootstrap t) UCL	0.657
95% KM (BCA) UCL	0.556
95% KM (Percentile Bootstrap) UCL	0.548
95% KM (Chebyshev) UCL	0.832
97.5% KM (Chebyshev) UCL	1.043
99% KM (Chebyshev) UCL	1.459

Potential UCLs to Use	
95% KM (t) UCL	0.531

Result (barium)

General Statistics

Number of Valid Data	61	Number of Detected Data	37
Number of Distinct Detected Data	19	Number of Non-Detect Data	24
		Percent Non-Detects	39.34%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	0.042	Maximum Detected	-3.17
Mean of Detected	0.0171	Mean of Detected	-4.161
SD of Detected	0.00831	SD of Detected	0.418
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	61
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.802	Lilliefors Test Statistic	0.875
5% Lilliefors Critical Value	0.936	5% Lilliefors Critical Value	0.936
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0219	Mean	-4.129
SD	0.0167	SD	0.818
95% DL/2 (t) UCL	0.0255	95% H-Stat (DL/2) UCL	0.0544
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.382
		SD in Log Scale	0.543
		Mean in Original Scale	0.0145
		SD in Original Scale	0.0083
		95% Percentile Bootstrap UCL	0.0162
		95% BCA Bootstrap UCL	0.0165

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.094	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.00336	
nu star	376.9	
A-D Test Statistic	1.841	**Nonparametric Statistics**
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method
K-S Test Statistic	0.75	Mean 0.0155
5% K-S Critical Value	0.145	SD 0.0078
Data not Gamma Distributed at 5% Significance Level		SE of Mean 0.00114
		95% KM (t) UCL 0.0174
Assuming Gamma Distribution		95% KM (z) UCL 0.0174
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.0174
Minimum	0.00111	95% KM (bootstrap t) UCL 0.0179
Maximum	0.042	95% KM (BCA) UCL 0.0175
Mean	0.0162	95% KM (Percentile Bootstrap) UCL 0.0175
Median	0.013	95% KM (Chebyshev) UCL 0.0205
SD	0.00804	97.5% KM (Chebyshev) UCL 0.0226
k star	3.793	99% KM (Chebyshev) UCL 0.0268
Theta star	0.00426	
Nu star	462.7	**Potential UCLs to Use**
AppChi2	413.8	95% KM (BCA) UCL 0.0175
95% Gamma Approximate UCL	0.0181	
95% Adjusted Gamma UCL	0.0181	

Note: DL/2 is not a recommended method.

Result (beryllium)

General Statistics

Number of Valid Data	59	Number of Detected Data	14
Number of Distinct Detected Data	8	Number of Non-Detect Data	45
		Percent Non-Detects	76.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.003	Minimum Detected	-5.809
Maximum Detected	0.012	Maximum Detected	-4.423
Mean of Detected	0.00714	Mean of Detected	-5.029
SD of Detected	0.00282	SD of Detected	0.458
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0025	Maximum Non-Detect	-5.991

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	45
Number treated as Detected	14
Single DL Non-Detect Percentage	76.27%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.944
5% Lilliefors Critical Value	0.874

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.894
5% Lilliefors Critical Value	0.874

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00263
SD	0.00287
95% DL/2 (t) UCL	0.00326
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.307
SD	0.753
95% H-Stat (DL/2) UCL	0.00237
Log ROS Method	
Mean in Log Scale	-6.271
SD in Log Scale	0.936
Mean in Original Scale	0.00288
SD in Original Scale	0.00285
95% Percentile Bootstrap UCL	0.00349
95% BCA Bootstrap UCL	0.0036

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	4.651
Theta Star	0.00154
nu star	130.2
A-D Test Statistic	0.541
5% A-D Critical Value	0.737
K-S Test Statistic	0.737
5% K-S Critical Value	0.229

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.003
Maximum	0.012
Mean	0.00637
Median	0.00605
SD	0.00165
k star	14.96
Theta star	0.000426
Nu star	1765
AppChi2	1668
95% Gamma Approximate UCL	0.00674
95% Adjusted Gamma UCL	0.00675

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00398
SD	0.00221
SE of Mean	0.000298
95% KM (t) UCL	0.00448
95% KM (z) UCL	0.00447
95% KM (jackknife) UCL	0.00447
95% KM (bootstrap t) UCL	0.00457
95% KM (BCA) UCL	0.00519
95% KM (Percentile Bootstrap) UCL	0.00495
95% KM (Chebyshev) UCL	0.00528
97.5% KM (Chebyshev) UCL	0.00584
99% KM (Chebyshev) UCL	0.00695

Potential UCLs to Use

95% KM (t) UCL	0.00448
95% KM (Percentile Bootstrap) UCL	0.00495

Result (boron)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	45

Raw Statistics		Log-transformed Statistics	
Minimum	0.517	Minimum of Log Data	-0.66
Maximum	12.6	Maximum of Log Data	2.534
Mean	4.864	Mean of log Data	1.487
Median	4.67	SD of log Data	0.484
SD	2.047		
Coefficient of Variation	0.421		
Skewness	1.297		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.927	Shapiro Wilk Test Statistic	0.889
Shapiro Wilk Critical Value	0.946	Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	5.366	95% H-UCL	5.684
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.556
95% Adjusted-CLT UCL	5.416	97.5% Chebyshev (MVUE) UCL	7.247
95% Modified-t UCL	5.375	99% Chebyshev (MVUE) UCL	8.603

Gamma Distribution Test		Data Distribution
k star (bias corrected)	5.099	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.954	
nu star	479.3	
Approximate Chi Square Value (.05)	429.5	Nonparametric Statistics
Adjusted Level of Significance	0.0449	95% CLT UCL 5.356
Adjusted Chi Square Value	428.1	95% Jackknife UCL 5.366
		95% Standard Bootstrap UCL 5.348
Anderson-Darling Test Statistic	0.578	95% Bootstrap-t UCL 5.446
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL 5.487
Kolmogorov-Smirnov Test Statistic	0.0935	95% Percentile Bootstrap UCL 5.364
Kolmogorov-Smirnov 5% Critical Value	0.129	95% BCA Bootstrap UCL 5.431
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 6.166
		97.5% Chebyshev(Mean, Sd) UCL 6.729
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 7.836
95% Approximate Gamma UCL	5.428	
95% Adjusted Gamma UCL	5.447	

Potential UCL to Use	Use 95% Approximate Gamma UCL 5.428

Result (bromide)

General Statistics

Number of Valid Data	66	Number of Detected Data	39
Number of Distinct Detected Data	35	Number of Non-Detect Data	27
		Percent Non-Detects	40.91%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.51	Minimum Detected	-0.673
Maximum Detected	8.22	Maximum Detected	2.107
Mean of Detected	2.253	Mean of Detected	0.534
SD of Detected	1.871	SD of Detected	0.744
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1	Maximum Non-Detect	0

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	35
Number treated as Detected	31
Single DL Non-Detect Percentage	53.03%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.792	Lilliefors Test Statistic	0.96
5% Lilliefors Critical Value	0.939	5% Lilliefors Critical Value	0.939
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.39	Mean	-0.553
SD	1.773	SD	1.471
95% DL/2 (t) UCL	1.755	95% H-Stat (DL/2) UCL	1.885
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.588	Mean in Log Scale	-0.229
SD	2.63	SD in Log Scale	1.148
95% MLE (t) UCL	1.128	Mean in Original Scale	1.456
95% MLE (Tiku) UCL	1.282	SD in Original Scale	1.728
		95% Percentile Bootstrap UCL	1.796
		95% BCA Bootstrap UCL	1.891

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.815	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	1.241	
nu star	141.6	
A-D Test Statistic	0.782	
5% A-D Critical Value	0.76	
K-S Test Statistic	0.76	
5% K-S Critical Value	0.143	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	8.22
Mean	1.998
Median	1.64
SD	1.593
k star	0.645
Theta star	3.096
Nu star	85.17
AppChi2	64.89
95% Gamma Approximate UCL	2.622
95% Adjusted Gamma UCL	2.638

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	1.541
SD	1.657
SE of Mean	0.207
95% KM (t) UCL	1.886
95% KM (z) UCL	1.881
95% KM (jackknife) UCL	1.881
95% KM (bootstrap t) UCL	1.954
95% KM (BCA) UCL	1.938
95% KM (Percentile Bootstrap) UCL	1.9
95% KM (Chebyshev) UCL	2.442
97.5% KM (Chebyshev) UCL	2.832
99% KM (Chebyshev) UCL	3.598

Potential UCLs to Use	
95% KM (t) UCL	1.886

Result (cadmium)

General Statistics

Number of Valid Data	70	Number of Detected Data	11
Number of Distinct Detected Data	7	Number of Non-Detect Data	59
		Percent Non-Detects	84.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.002	Minimum Detected	-6.215
Maximum Detected	0.053	Maximum Detected	-2.937
Mean of Detected	0.0147	Mean of Detected	-4.777
SD of Detected	0.0172	SD of Detected	1.079
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	62
Number treated as Detected	8
Single DL Non-Detect Percentage	88.57%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.72
5% Lilliefors Critical Value	0.85

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.887
5% Lilliefors Critical Value	0.85

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00318
SD	0.00829
95% DL/2 (t) UCL	0.00483
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.759
SD	1.131
95% H-Stat (DL/2) UCL	0.00233
Log ROS Method	
Mean in Log Scale	-8.777
SD in Log Scale	2.525
Mean in Original Scale	0.00254
SD in Original Scale	0.00843
95% Percentile Bootstrap UCL	0.00428
95% BCA Bootstrap UCL	0.00504

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.809
Theta Star	0.0182
nu star	17.81
A-D Test Statistic	0.944
5% A-D Critical Value	0.751
K-S Test Statistic	0.751
5% K-S Critical Value	0.262

Data not Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.197
Mean	0.075
Median	0.0628
SD	0.0616
k star	0.56
Theta star	0.134
Nu star	78.35
AppChi2	58.96
95% Gamma Approximate UCL	0.0997
95% Adjusted Gamma UCL	0.1

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00401
SD	0.00798
SE of Mean	0.001
95% KM (t) UCL	0.00568
95% KM (z) UCL	0.00565
95% KM (jackknife) UCL	0.00533
95% KM (bootstrap t) UCL	0.00718
95% KM (BCA) UCL	0.00841
95% KM (Percentile Bootstrap) UCL	0.00701
95% KM (Chebyshev) UCL	0.00837
97.5% KM (Chebyshev) UCL	0.0103
99% KM (Chebyshev) UCL	0.014

Potential UCLs to Use

95% KM (BCA) UCL	0.00841

Result (calcium metal)

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	14

Raw Statistics		Log-transformed Statistics	
Minimum	287	Minimum of Log Data	5.659
Maximum	569	Maximum of Log Data	6.344
Mean	467.9	Mean of log Data	6.131
Median	493	SD of log Data	0.198
SD	82.97		
Coefficient of Variation	0.177		
Skewness	-1.01		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.892	Shapiro Wilk Test Statistic	0.851
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	505.6	95% H-UCL	516.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	573.4
95% Adjusted-CLT UCL	497.1	97.5% Chebyshev (MVUE) UCL	618.8
95% Modified-t UCL	504.7	99% Chebyshev (MVUE) UCL	708

Gamma Distribution Test		Data Distribution
k star (bias corrected)	23.74	Data appear Normal at 5% Significance Level
Theta Star	19.7	
nu star	712.3	
Approximate Chi Square Value (.05)	651.4	Nonparametric Statistics
Adjusted Level of Significance	0.0324	95% CLT UCL 503.1
Adjusted Chi Square Value	644.2	95% Jackknife UCL 505.6
		95% Standard Bootstrap UCL 501.8
Anderson-Darling Test Statistic	0.874	95% Bootstrap-t UCL 499.3
Anderson-Darling 5% Critical Value	0.735	95% Hall's Bootstrap UCL 496.6
Kolmogorov-Smirnov Test Statistic	0.219	95% Percentile Bootstrap UCL 499.9
Kolmogorov-Smirnov 5% Critical Value	0.221	95% BCA Bootstrap UCL 496.8
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 561.3
		97.5% Chebyshev(Mean, Sd) UCL 601.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 681
95% Approximate Gamma UCL	511.6	
95% Adjusted Gamma UCL	517.3	

Potential UCL to Use	Use 95% Student's-t UCL 505.6

Result (chloride (cl))

General Statistics

Number of Valid Observations	70	Number of Distinct Observations	66

Raw Statistics		Log-transformed Statistics	
Minimum	94	Minimum of Log Data	4.543
Maximum	20200	Maximum of Log Data	9.913
Mean	3092	Mean of log Data	7.333
Median	1830	SD of log Data	1.215
SD	4180		
Coefficient of Variation	1.352		
Skewness	2.417		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.259	Lilliefors Test Statistic	0.103
Lilliefors Critical Value	0.106	Lilliefors Critical Value	0.106
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	3925	95% H-UCL	4790
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5656
95% Adjusted-CLT UCL	4068	97.5% Chebyshev (MVUE) UCL	6742
95% Modified-t UCL	3949	99% Chebyshev (MVUE) UCL	8876

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.811	Data appear Lognormal at 5% Significance Level
Theta Star	3811	
nu star	113.6	
Approximate Chi Square Value (.05)	89.99	
Adjusted Level of Significance	0.0466	
Adjusted Chi Square Value	89.55	
Anderson-Darling Test Statistic	1.714	
Anderson-Darling 5% Critical Value	0.788	
Kolmogorov-Smirnov Test Statistic	0.119	
Kolmogorov-Smirnov 5% Critical Value	0.11	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
95% Approximate Gamma UCL	3904	95% CLT UCL	3914
95% Adjusted Gamma UCL	3923	95% Jackknife UCL	3925
		95% Standard Bootstrap UCL	3916
		95% Bootstrap-t UCL	4097
		95% Hall's Bootstrap UCL	4099
		95% Percentile Bootstrap UCL	3951
		95% BCA Bootstrap UCL	4089
		95% Chebyshev(Mean, Sd) UCL	5270
		97.5% Chebyshev(Mean, Sd) UCL	6212
		99% Chebyshev(Mean, Sd) UCL	8063

Potential UCL to Use		Use 95% H-UCL	4790

Result (chloroform)

General Statistics

Number of Valid Data	70	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	57
		Percent Non-Detects	81.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00101	Minimum Detected	-6.898
Maximum Detected	0.00219	Maximum Detected	-6.124
Mean of Detected	0.0016	Mean of Detected	-6.461
SD of Detected	0.000356	SD of Detected	0.235
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.975	Lilliefors Test Statistic	0.957
5% Lilliefors Critical Value	0.866	5% Lilliefors Critical Value	0.866
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000705	Mean	-7.389
SD	0.000457	SD	0.457
95% DL/2 (t) UCL	0.000796	95% H-Stat (DL/2) UCL	0.00069
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.000121	Mean in Log Scale	-7.246
SD	0.001	SD in Log Scale	0.54
95% MLE (t) UCL	0.000321	Mean in Original Scale	0.000822
95% MLE (Tiku) UCL	0.000628	SD in Original Scale	0.00046
		95% Percentile Bootstrap UCL	0.000916
		95% BCA Bootstrap UCL	0.000917

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	15.9	Data appear Normal at 5% Significance Level
Theta Star	0.000101	
nu star	413.5	
A-D Test Statistic	0.241	
5% A-D Critical Value	0.733	
K-S Test Statistic	0.733	
5% K-S Critical Value	0.236	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.000859	Mean	0.00112
Maximum	0.00292	SD	0.000274
Mean	0.00221	SE of Mean	3.4E-05
Median	0.00232	95% KM (t) UCL	0.00118
SD	0.000549	95% KM (z) UCL	0.00118
k star	13.1	95% KM (jackknife) UCL	0.00119
Theta star	0.000168	95% KM (bootstrap t) UCL	0.00118
Nu star	1834	95% KM (BCA) UCL	0.00144
AppChi2	1736	95% KM (Percentile Bootstrap) UCL	0.00135
95% Gamma Approximate UCL	0.00233	95% KM (Chebyshev) UCL	0.00127
95% Adjusted Gamma UCL	0.00233	97.5% KM (Chebyshev) UCL	0.00133
		99% KM (Chebyshev) UCL	0.00146
		Potential UCLs to Use	
		95% KM (t) UCL	0.00118
		95% KM (Percentile Bootstrap) UCL	0.00135

Note: DL/2 is not a recommended method.

Result (chromium)

General Statistics

Number of Valid Data	70	Number of Detected Data	38
Number of Distinct Detected Data	35	Number of Non-Detect Data	32
		Percent Non-Detects	45.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	1.37	Maximum Detected	0.315
Mean of Detected	0.276	Mean of Detected	-2.303
SD of Detected	0.362	SD of Detected	1.657
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	37
Number treated as Detected	33
Single DL Non-Detect Percentage	52.86%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.726
5% Lilliefors Critical Value	0.938

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.935
5% Lilliefors Critical Value	0.938

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.151
SD	0.298
95% DL/2 (t) UCL	0.211
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-3.821
SD	2.074
95% H-Stat (DL/2) UCL	0.205
Log ROS Method	
Mean in Log Scale	-4.147
SD in Log Scale	2.533
Mean in Original Scale	0.151
SD in Original Scale	0.298
95% Percentile Bootstrap UCL	0.209
95% BCA Bootstrap UCL	0.222

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.578
Theta Star	0.477
nu star	43.91
A-D Test Statistic	0.739
5% A-D Critical Value	0.802
K-S Test Statistic	0.802
5% K-S Critical Value	0.15

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00431
Maximum	1.37
Mean	0.247
Median	0.161
SD	0.294
k star	0.709
Theta star	0.348
Nu star	99.3
AppChi2	77.32
95% Gamma Approximate UCL	0.317
95% Adjusted Gamma UCL	0.319

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.152
SD	0.296
SE of Mean	0.0358
95% KM (t) UCL	0.212
95% KM (z) UCL	0.211
95% KM (jackknife) UCL	0.211
95% KM (bootstrap t) UCL	0.229
95% KM (BCA) UCL	0.21
95% KM (Percentile Bootstrap) UCL	0.214
95% KM (Chebyshev) UCL	0.308
97.5% KM (Chebyshev) UCL	0.376
99% KM (Chebyshev) UCL	0.508

Potential UCLs to Use

95% KM (BCA) UCL	0.21

Result (cobalt)

General Statistics

Number of Valid Data	59	Number of Detected Data	6
Number of Distinct Detected Data	4	Number of Non-Detect Data	53
		Percent Non-Detects	89.83%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.006	Minimum Detected	-5.116
Maximum Detected	0.07	Maximum Detected	-2.659
Mean of Detected	0.0173	Mean of Detected	-4.607
SD of Detected	0.0258	SD of Detected	0.96
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.02	Maximum Non-Detect	-3.912

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	58
Number treated as Detected	1
Single DL Non-Detect Percentage	98.31%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.522	Lilliefors Test Statistic	0.598
5% Lilliefors Critical Value	0.788	5% Lilliefors Critical Value	0.788
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00632	Mean	-5.466
SD	0.00916	SD	0.827
95% DL/2 (t) UCL	0.00832	95% H-Stat (DL/2) UCL	0.00714
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-7.766
		SD in Log Scale	1.841
		Mean in Original Scale	0.0025
		SD in Original Scale	0.00919
		95% Percentile Bootstrap UCL	0.00478
		95% BCA Bootstrap UCL	0.0062

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.631	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.0274	
nu star	7.577	
A-D Test Statistic	1.455	
5% A-D Critical Value	0.715	
K-S Test Statistic	0.715	
5% K-S Critical Value	0.341	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.00719
Maximum	0.07	SD	0.00826
Mean	0.0129	SE of Mean	0.00118
Median	0.0109	95% KM (t) UCL	0.00915
SD	0.012	95% KM (z) UCL	0.00912
k star	0.214	95% KM (jackknife) UCL	0.009
Theta star	0.0604	95% KM (bootstrap t) UCL	0.0366
Nu star	25.24	95% KM (BCA) UCL	0.0102
AppChi2	14.8	95% KM (Percentile Bootstrap) UCL	0.00938
95% Gamma Approximate UCL	0.022	95% KM (Chebyshev) UCL	0.0123
95% Adjusted Gamma UCL	0.0224	97.5% KM (Chebyshev) UCL	0.0145
		99% KM (Chebyshev) UCL	0.0189
		Potential UCLs to Use	
		95% KM (t) UCL	0.00915
		95% KM (% Bootstrap) UCL	0.00938

Note: DL/2 is not a recommended method.

Result (copper)

General Statistics

Number of Valid Data	70	Number of Detected Data	33
Number of Distinct Detected Data	29	Number of Non-Detect Data	37
		Percent Non-Detects	52.86%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	2	Maximum Detected	0.693
Mean of Detected	0.158	Mean of Detected	-3.15
SD of Detected	0.404	SD of Detected	1.451
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.0125	Maximum Non-Detect	-4.382

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	45
Number treated as Detected	25
Single DL Non-Detect Percentage	64.29%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.394
5% Lilliefors Critical Value	0.931

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.938
5% Lilliefors Critical Value	0.931

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0764
SD	0.286
95% DL/2 (t) UCL	0.133
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-4.547
SD	1.679
95% H-Stat (DL/2) UCL	0.0407
Log ROS Method	
Mean in Log Scale	-5.223
SD in Log Scale	2.433
Mean in Original Scale	0.0755
SD in Original Scale	0.286
95% Percentile Bootstrap UCL	0.135
95% BCA Bootstrap UCL	0.17

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.464
Theta Star	0.341
nu star	30.62
A-D Test Statistic	2.752
5% A-D Critical Value	0.814
K-S Test Statistic	0.814
5% K-S Critical Value	0.162

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2
Mean	0.154
Median	0.039
SD	0.31
k star	0.16
Theta star	0.963
Nu star	22.36
AppChi2	12.61
95% Gamma Approximate UCL	0.273
95% Adjusted Gamma UCL	0.276

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0773
SD	0.284
SE of Mean	0.0345
95% KM (t) UCL	0.135
95% KM (z) UCL	0.134
95% KM (jackknife) UCL	0.134
95% KM (bootstrap t) UCL	0.359
95% KM (BCA) UCL	0.145
95% KM (Percentile Bootstrap) UCL	0.139
95% KM (Chebyshev) UCL	0.228
97.5% KM (Chebyshev) UCL	0.292
99% KM (Chebyshev) UCL	0.42

Potential UCLs to Use

95% KM (BCA) UCL	0.145

Result (fluoride)

General Statistics

Number of Valid Data	70	Number of Detected Data	60
Number of Distinct Detected Data	51	Number of Non-Detect Data	10
		Percent Non-Detects	14.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.281	Minimum Detected	-1.269
Maximum Detected	49.4	Maximum Detected	3.9
Mean of Detected	4.844	Mean of Detected	1.377
SD of Detected	6.02	SD of Detected	0.557
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.351	Lilliefors Test Statistic	0.196
5% Lilliefors Critical Value	0.114	5% Lilliefors Critical Value	0.114
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.167	Mean	0.851
SD	5.812	SD	1.395
95% DL/2 (t) UCL	5.325	95% H-Stat (DL/2) UCL	7.296
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.598	Mean in Log Scale	1.231
SD	6.436	SD in Log Scale	0.633
95% MLE (t) UCL	4.881	Mean in Original Scale	4.36
95% MLE (Tiku) UCL	4.835	SD in Original Scale	5.695
		95% Percentile Bootstrap UCL	5.634
		95% BCA Bootstrap UCL	6.565

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.526	Data do not follow a Discernable Distribution (0.05)
Theta Star	1.918	
nu star	303.1	
A-D Test Statistic	5.936	
5% A-D Critical Value	0.76	
K-S Test Statistic	0.76	
5% K-S Critical Value	0.116	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	4.192
Maximum	49.4	SD	5.753
Mean	4.311	SE of Mean	0.693
Median	3.39	95% KM (t) UCL	5.349
SD	5.728	95% KM (z) UCL	5.333
k star	0.689	95% KM (jackknife) UCL	5.191
Theta star	6.257	95% KM (bootstrap t) UCL	6.959
Nu star	96.46	95% KM (BCA) UCL	5.836
AppChi2	74.81	95% KM (Percentile Bootstrap) UCL	5.685
95% Gamma Approximate UCL	5.559	95% KM (Chebyshev) UCL	7.215
95% Adjusted Gamma UCL	5.589	97.5% KM (Chebyshev) UCL	8.523
		99% KM (Chebyshev) UCL	11.09
		Potential UCLs to Use	
		95% KM (BCA) UCL	5.836

Note: DL/2 is not a recommended method.

Result (gro)

General Statistics

Number of Valid Data	70	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	62
		Percent Non-Detects	88.57%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.102	Minimum Detected	-2.283
Maximum Detected	0.281	Maximum Detected	-1.269
Mean of Detected	0.184	Mean of Detected	-1.744
SD of Detected	0.0588	SD of Detected	0.346
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.953	Lilliefors Test Statistic	0.921
5% Lilliefors Critical Value	0.818	5% Lilliefors Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0653	Mean	-2.853
SD	0.0467	SD	0.416
95% DL/2 (t) UCL	0.0746	95% H-Stat (DL/2) UCL	0.0639
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.326
		SD in Log Scale	0.929
		Mean in Original Scale	0.0546
		SD in Original Scale	0.0559
		95% Percentile Bootstrap UCL	0.0659
		95% BCA Bootstrap UCL	0.0672

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	6.521	Data appear Normal at 5% Significance Level	
Theta Star	0.0282		
nu star	104.3		
A-D Test Statistic	0.341	**Nonparametric Statistics**	
5% A-D Critical Value	0.715	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.715	Mean	0.111
5% K-S Critical Value	0.294	SD	0.0319
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00408
		95% KM (t) UCL	0.118
Assuming Gamma Distribution		95% KM (z) UCL	0.118
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.118
Minimum	0.0841	95% KM (bootstrap t) UCL	0.119
Maximum	0.509	95% KM (BCA) UCL	0.181
Mean	0.36	95% KM (Percentile Bootstrap) UCL	0.177
Median	0.389	95% KM (Chebyshev) UCL	0.129
SD	0.117	97.5% KM (Chebyshev) UCL	0.137
k star	6.752	99% KM (Chebyshev) UCL	0.152
Theta star	0.0533		
Nu star	945.3	**Potential UCLs to Use**	
AppChi2	875	95% KM (t) UCL	0.118
95% Gamma Approximate UCL	0.389	95% KM (Percentile Bootstrap) UCL	0.177
95% Adjusted Gamma UCL	0.389		

Note: DL/2 is not a recommended method.

Result (hexavalent chromium)

General Statistics

Number of Valid Data	32	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	14
		Percent Non-Detects	43.75%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.023	Minimum Detected	-3.772
Maximum Detected	1.61	Maximum Detected	0.476
Mean of Detected	0.437	Mean of Detected	-1.58
SD of Detected	0.529	SD of Detected	1.356
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.716	Shapiro Wilk Test Statistic	0.912
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.248	Mean	-3.207
SD	0.448	SD	2.126
95% DL/2 (t) UCL	0.382	95% H-Stat (DL/2) UCL	0.696
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0193	Mean in Log Scale	-3.109
SD	0.666	SD in Log Scale	2.156
95% MLE (t) UCL	0.219	Mean in Original Scale	0.25
95% MLE (Tiku) UCL	0.251	SD in Original Scale	0.447
		95% Percentile Bootstrap UCL	0.383
		95% BCA Bootstrap UCL	0.416

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.695	Data appear Lognormal at 5% Significance Level
Theta Star	0.629	
nu star	25.03	
A-D Test Statistic	0.85	
5% A-D Critical Value	0.776	
K-S Test Statistic	0.776	
5% K-S Critical Value	0.211	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.256
Maximum	1.61	SD	0.437
Mean	0.362	SE of Mean	0.0795
Median	0.227	95% KM (t) UCL	0.391
SD	0.439	95% KM (z) UCL	0.387
k star	0.244	95% KM (jackknife) UCL	0.386
Theta star	1.484	95% KM (bootstrap t) UCL	0.452
Nu star	15.62	95% KM (BCA) UCL	0.418
AppChi2	7.697	95% KM (Percentile Bootstrap) UCL	0.392
95% Gamma Approximate UCL	0.736	95% KM (Chebyshev) UCL	0.603
95% Adjusted Gamma UCL	0.765	97.5% KM (Chebyshev) UCL	0.752
		99% KM (Chebyshev) UCL	1.047
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	0.752

Note: DL/2 is not a recommended method.

Result (iron)

General Statistics

Number of Valid Data	47	Number of Detected Data	38
Number of Distinct Detected Data	36	Number of Non-Detect Data	9
		Percent Non-Detects	19.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.014	Minimum Detected	-4.269
Maximum Detected	25.7	Maximum Detected	3.246
Mean of Detected	1.231	Mean of Detected	-1.656
SD of Detected	4.252	SD of Detected	1.716
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	18
Number treated as Detected	29
Single DL Non-Detect Percentage	38.30%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.302
5% Shapiro Wilk Critical Value	0.938

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.941
5% Shapiro Wilk Critical Value	0.938

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.998
SD	3.844
95% DL/2 (t) UCL	1.939
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-2.251
SD	2.001
95% H-Stat (DL/2) UCL	1.223
Log ROS Method	
Mean in Log Scale	-2.345
SD in Log Scale	2.14
Mean in Original Scale	0.997
SD in Original Scale	3.845
95% Percentile Bootstrap UCL	2.022
95% BCA Bootstrap UCL	2.672

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.348
Theta Star	3.534
nu star	26.48
A-D Test Statistic	3.523
5% A-D Critical Value	0.844
K-S Test Statistic	0.844
5% K-S Critical Value	0.154

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	25.7
Mean	0.995
Median	0.099
SD	3.845
k star	0.15
Theta star	6.616
Nu star	14.14
AppChi2	6.67
95% Gamma Approximate UCL	2.111
95% Adjusted Gamma UCL	2.164

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.999
SD	3.803
SE of Mean	0.562
95% KM (t) UCL	1.942
95% KM (z) UCL	1.923
95% KM (jackknife) UCL	1.94
95% KM (bootstrap t) UCL	6.33
95% KM (BCA) UCL	2.106
95% KM (Percentile Bootstrap) UCL	2.001
95% KM (Chebyshev) UCL	3.449
97.5% KM (Chebyshev) UCL	4.509
99% KM (Chebyshev) UCL	6.592

Potential UCLs to Use

97.5% KM (Chebyshev) UCL	4.509

Result (lithium)

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	13

Raw Statistics

Minimum	0.144
Maximum	1.1
Mean	0.555
Median	0.595
SD	0.335
Coefficient of Variation	0.602
Skewness	-0.00962

Log-transformed Statistics

Minimum of Log Data	-1.938
Maximum of Log Data	0.0953
Mean of log Data	-0.825
SD of log Data	0.775

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.881

Data appear Normal at 5% Significance Level

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.842
Shapiro Wilk Critical Value	0.881

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	0.708

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	0.697
95% Modified-t UCL	0.708

Assuming Lognormal Distribution

95% H-UCL	0.975
95% Chebyshev (MVUE) UCL	1.113
97.5% Chebyshev (MVUE) UCL	1.345
99% Chebyshev (MVUE) UCL	1.8

Gamma Distribution Test

k star (bias corrected)	1.855
Theta Star	0.299
nu star	55.64
Approximate Chi Square Value (.05)	39.5
Adjusted Level of Significance	0.0324
Adjusted Chi Square Value	37.83
Anderson-Darling Test Statistic	0.88
Anderson-Darling 5% Critical Value	0.746
Kolmogorov-Smirnov Test Statistic	0.196
Kolmogorov-Smirnov 5% Critical Value	0.224

Data follow Appr. Gamma Distribution at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	0.782
95% Adjusted Gamma UCL	0.817

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	0.698
95% Jackknife UCL	0.708
95% Standard Bootstrap UCL	0.689
95% Bootstrap-t UCL	0.706
95% Hall's Bootstrap UCL	0.687
95% Percentile Bootstrap UCL	0.699
95% BCA Bootstrap UCL	0.685
95% Chebyshev(Mean, Sd) UCL	0.932
97.5% Chebyshev(Mean, Sd) UCL	1.095
99% Chebyshev(Mean, Sd) UCL	1.415

Potential UCL to Use

Use 95% Student's-t UCL 0.708

Result (magnesium)

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	15

Raw Statistics		Log-transformed Statistics	
Minimum	379	Minimum of Log Data	5.938
Maximum	1470	Maximum of Log Data	7.293
Mean	678.7	Mean of log Data	6.45
Median	612	SD of log Data	0.375
SD	286.1		
Coefficient of Variation	0.422		
Skewness	1.619		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.856	Shapiro Wilk Test Statistic	0.956
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	808.8	95% H-UCL	824.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	965.4
95% Adjusted-CLT UCL	833.2	97.5% Chebyshev (MVUE) UCL	1091
95% Modified-t UCL	813.9	99% Chebyshev (MVUE) UCL	1337

Gamma Distribution Test		Data Distribution
k star (bias corrected)	5.903	Data appear Gamma Distributed at 5% Significance Level
Theta Star	115	
nu star	177.1	
Approximate Chi Square Value (.05)	147.3	Nonparametric Statistics
Adjusted Level of Significance	0.0324	95% CLT UCL 800.2
Adjusted Chi Square Value	144	95% Jackknife UCL 808.8
		95% Standard Bootstrap UCL 793.6
Anderson-Darling Test Statistic	0.34	95% Bootstrap-t UCL 867.3
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL 967
Kolmogorov-Smirnov Test Statistic	0.159	95% Percentile Bootstrap UCL 796.5
Kolmogorov-Smirnov 5% Critical Value	0.222	95% BCA Bootstrap UCL 823.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1001
		97.5% Chebyshev(Mean, Sd) UCL 1140
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1414
95% Approximate Gamma UCL	815.9	
95% Adjusted Gamma UCL	834.8	

Potential UCL to Use	Use 95% Approximate Gamma UCL 815.9

Result (manganese)

General Statistics

Number of Valid Data	47	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	40
		Percent Non-Detects	85.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.026	Minimum Detected	-3.65
Maximum Detected	0.616	Maximum Detected	-0.485
Mean of Detected	0.275	Mean of Detected	-1.859
SD of Detected	0.251	SD of Detected	1.311
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	40
Number treated as Detected	7
Single DL Non-Detect Percentage	85.11%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.861	Shapiro Wilk Test Statistic	0.889
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0511	Mean	-4.075
SD	0.131	SD	1.099
95% DL/2 (t) UCL	0.0832	95% H-Stat (DL/2) UCL	0.0335
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.194
		SD in Log Scale	3.349
		Mean in Original Scale	0.043
		SD in Original Scale	0.134
		95% Percentile Bootstrap UCL	0.0793
		95% BCA Bootstrap UCL	0.0881

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.676	**Data appear Normal at 5% Significance Level**
Theta Star	0.407	
nu star	9.457	
A-D Test Statistic	0.345	
5% A-D Critical Value	0.727	
K-S Test Statistic	0.727	
5% K-S Critical Value	0.32	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.063
Maximum	0.616	SD	0.126
Mean	0.159	SE of Mean	0.0199
Median	0.13	95% KM (t) UCL	0.0964
SD	0.16	95% KM (z) UCL	0.0957
k star	0.145	95% KM (jackknife) UCL	0.0907
Theta star	1.097	95% KM (bootstrap t) UCL	0.118
Nu star	13.6	95% KM (BCA) UCL	0.319
AppChi2	6.296	95% KM (Percentile Bootstrap) UCL	0.231
95% Gamma Approximate UCL	0.343	95% KM (Chebyshev) UCL	0.15
95% Adjusted Gamma UCL	0.351	97.5% KM (Chebyshev) UCL	0.187
		99% KM (Chebyshev) UCL	0.261
		Potential UCLs to Use	
		95% KM (t) UCL	0.0964
		95% KM (Percentile Bootstrap) UCL	0.231

Note: DL/2 is not a recommended method.

Result (molybdenum)

General Statistics

Number of Valid Data	47	Number of Detected Data	44
Number of Distinct Detected Data	43	Number of Non-Detect Data	3
		Percent Non-Detects	6.38%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.103	Minimum Detected	-2.273
Maximum Detected	1.35	Maximum Detected	0.3
Mean of Detected	0.454	Mean of Detected	-1.015
SD of Detected	0.324	SD of Detected	0.673
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.841	Shapiro Wilk Test Statistic	0.964
5% Shapiro Wilk Critical Value	0.944	5% Shapiro Wilk Critical Value	0.944
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.426	Mean	-1.186
SD	0.331	SD	0.927
95% DL/2 (t) UCL	0.507	95% H-Stat (DL/2) UCL	0.576
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.417	Mean in Log Scale	-1.117
SD	0.343	SD in Log Scale	0.762
95% MLE (t) UCL	0.501	Mean in Original Scale	0.429
95% MLE (Tiku) UCL	0.498	SD in Original Scale	0.327
		95% Percentile Bootstrap UCL	0.506
		95% BCA Bootstrap UCL	0.517

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.234	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	0.203	
nu star	196.6	
A-D Test Statistic	0.777	
5% A-D Critical Value	0.758	
K-S Test Statistic	0.758	
5% K-S Critical Value	0.135	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1.35
Mean	0.425
Median	0.331
SD	0.333
k star	0.44
Theta star	0.965
Nu star	41.38
AppChi2	27.64
95% Gamma Approximate UCL	0.636
95% Adjusted Gamma UCL	0.644

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.431
SD	0.322
SE of Mean	0.0475
95% KM (t) UCL	0.511
95% KM (z) UCL	0.509
95% KM (jackknife) UCL	0.51
95% KM (bootstrap t) UCL	0.521
95% KM (BCA) UCL	0.505
95% KM (Percentile Bootstrap) UCL	0.515
95% KM (Chebyshev) UCL	0.638
97.5% KM (Chebyshev) UCL	0.728
99% KM (Chebyshev) UCL	0.903

Potential UCLs to Use	
95% KM (BCA) UCL	0.505

Result (nickel)

General Statistics

Number of Valid Data	59	Number of Detected Data	10
Number of Distinct Detected Data	8	Number of Non-Detect Data	49
		Percent Non-Detects	83.05%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.006	Minimum Detected	-5.116
Maximum Detected	4.88	Maximum Detected	1.585
Mean of Detected	0.533	Mean of Detected	-3.602
SD of Detected	1.531	SD of Detected	2.166
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	57
Number treated as Detected	2
Single DL Non-Detect Percentage	96.61%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.403
5% Lilliefors Critical Value	0.842

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.679
5% Lilliefors Critical Value	0.842

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0952
SD	0.635
95% DL/2 (t) UCL	0.234
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.079
SD	1.247
95% H-Stat (DL/2) UCL	0.0418
Log ROS Method	
Mean in Log Scale	-9.061
SD in Log Scale	3.726
Mean in Original Scale	0.091
SD in Original Scale	0.636
95% Percentile Bootstrap UCL	0.256
95% BCA Bootstrap UCL	0.352

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.235
Theta Star	2.27
nu star	4.699
A-D Test Statistic	2.146
5% A-D Critical Value	0.838
K-S Test Statistic	0.838
5% K-S Critical Value	0.292

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	317.3
Mean	36.34
Median	5.067
SD	63.35
k star	0.138
Theta star	263.8
Nu star	16.25
AppChi2	8.142
95% Gamma Approximate UCL	72.56
95% Adjusted Gamma UCL	73.87

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0956
SD	0.63
SE of Mean	0.0864
95% KM (t) UCL	0.24
95% KM (z) UCL	0.238
95% KM (jackknife) UCL	0.233
95% KM (bootstrap t) UCL	21.6
95% KM (BCA) UCL	0.262
95% KM (Percentile Bootstrap) UCL	0.26
95% KM (Chebyshev) UCL	0.472
97.5% KM (Chebyshev) UCL	0.635
99% KM (Chebyshev) UCL	0.956

Potential UCLs to Use

99% KM (Chebyshev) UCL	0.956

Result (nitrate)

General Statistics

Number of Valid Observations	56	Number of Distinct Observations	54

Raw Statistics		Log-transformed Statistics	
Minimum	1.67	Minimum of Log Data	0.513
Maximum	301	Maximum of Log Data	5.707
Mean	62.66	Mean of log Data	3.691
Median	61.5	SD of log Data	1.074
SD	55.36		
Coefficient of Variation	0.884		
Skewness	1.773		

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.135
Lilliefors Critical Value	0.118

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.171
Lilliefors Critical Value	0.118

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	75.04
95% UCLs (Adjusted for Skewness)	
95% Adjusted-CLT UCL	76.7
95% Modified-t UCL	75.33

Assuming Lognormal Distribution

95% H-UCL	185.3
95% Chebyshev (MVUE) UCL	123.1
97.5% Chebyshev (MVUE) UCL	146
99% Chebyshev (MVUE) UCL	190.9

Gamma Distribution Test

k star (bias corrected)	1.205
Theta Star	52.01
nu star	134.9
Approximate Chi Square Value (.05)	109.1
Adjusted Level of Significance	0.0457
Adjusted Chi Square Value	108.5
Anderson-Darling Test Statistic	0.928
Anderson-Darling 5% Critical Value	0.774
Kolmogorov-Smirnov Test Statistic	0.128
Kolmogorov-Smirnov 5% Critical Value	0.122

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	77.5
95% Adjusted Gamma UCL	77.94

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	74.83
95% Jackknife UCL	75.04
95% Standard Bootstrap UCL	74.95
95% Bootstrap-t UCL	77.98
95% Hall's Bootstrap UCL	78.61
95% Percentile Bootstrap UCL	75.38
95% BCA Bootstrap UCL	76.64
95% Chebyshev(Mean, Sd) UCL	94.91
97.5% Chebyshev(Mean, Sd) UCL	108.9
99% Chebyshev(Mean, Sd) UCL	136.3

Potential UCL to Use

Use 97.5% Chebyshev (Mean, Sd) UCL 108.9

Result (nitrate + nitrite)

General Statistics

Number of Valid Data	14	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	2
		Percent Non-Detects	14.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	9.98	Minimum Detected	2.301
Maximum Detected	686	Maximum Detected	6.531
Mean of Detected	188.6	Mean of Detected	4.539
SD of Detected	203.8	SD of Detected	1.41
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.84	Shapiro Wilk Test Statistic	0.939
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	161.7	Mean	3.463
SD	199.6	SD	3.028
95% DL/2 (t) UCL	256.2	95% H-Stat (DL/2) UCL	192609
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	143.2	Mean in Log Scale	4.065
SD	216	SD in Log Scale	1.777
95% MLE (t) UCL	245.4	Mean in Original Scale	162.2
95% MLE (Tiku) UCL	243.1	SD in Original Scale	199.2
		95% Percentile Bootstrap UCL	249.3
		95% BCA Bootstrap UCL	271.1

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.687	Data appear Gamma Distributed at 5% Significance Level
Theta Star	274.6	
nu star	16.49	
A-D Test Statistic	0.191	
5% A-D Critical Value	0.762	
K-S Test Statistic	0.762	
5% K-S Critical Value	0.254	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	163.1
Maximum	686	SD	191.2
Mean	161.7	SE of Mean	53.37
Median	90.9	95% KM (t) UCL	257.6
SD	199.6	95% KM (z) UCL	250.9
k star	0.189	95% KM (jackknife) UCL	256.9
Theta star	855.3	95% KM (bootstrap t) UCL	301.6
Nu star	5.294	95% KM (BCA) UCL	259.5
AppChi2	1.29	95% KM (Percentile Bootstrap) UCL	250.9
95% Gamma Approximate UCL	663.4	95% KM (Chebyshev) UCL	395.7
95% Adjusted Gamma UCL	815.7	97.5% KM (Chebyshev) UCL	496.4
		99% KM (Chebyshev) UCL	694.1
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	395.7

Note: DL/2 is not a recommended method.

Result (phosphorus)

General Statistics

Number of Valid Data	50	Number of Detected Data	18
Number of Distinct Detected Data	17	Number of Non-Detect Data	32
		Percent Non-Detects	64.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.056	Minimum Detected	-2.882
Maximum Detected	0.592	Maximum Detected	-0.524
Mean of Detected	0.153	Mean of Detected	-2.088
SD of Detected	0.126	SD of Detected	0.616
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.684	Shapiro Wilk Test Statistic	0.932
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0709	Mean	-3.113
SD	0.0966	SD	0.857
95% DL/2 (t) UCL	0.0938	95% H-Stat (DL/2) UCL	0.066
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.37
		SD in Log Scale	1.213
		Mean in Original Scale	0.0687
		SD in Original Scale	0.0983
		95% Percentile Bootstrap UCL	0.0938
		95% BCA Bootstrap UCL	0.104

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.17	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.0703		
nu star	78.11		
A-D Test Statistic	0.666	Nonparametric Statistics	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	0.0908
5% K-S Critical Value	0.206	SD	0.0869
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0126
		95% KM (t) UCL	0.112
Assuming Gamma Distribution		95% KM (z) UCL	0.112
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.111
Minimum	1E-09	95% KM (bootstrap t) UCL	0.128
Maximum	0.592	95% KM (BCA) UCL	0.117
Mean	0.207	95% KM (Percentile Bootstrap) UCL	0.113
Median	0.183	95% KM (Chebyshev) UCL	0.146
SD	0.127	97.5% KM (Chebyshev) UCL	0.17
k star	0.955	99% KM (Chebyshev) UCL	0.217
Theta star	0.217		
Nu star	95.54	Potential UCLs to Use	
AppChi2	74	95% KM (t) UCL	0.112
95% Gamma Approximate UCL	0.267		
95% Adjusted Gamma UCL	0.269		

Note: DL/2 is not a recommended method.

Result (potassium)

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	15

Raw Statistics

Minimum	59
Maximum	250
Mean	113.5
Median	105
SD	44.04
Coefficient of Variation	0.388
Skewness	2.277

Log-transformed Statistics

Minimum of Log Data	4.078
Maximum of Log Data	5.521
Mean of log Data	4.678
SD of log Data	0.326

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.777
Shapiro Wilk Critical Value	0.881

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	133.5

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	139.4
95% Modified-t UCL	134.7

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.929
Shapiro Wilk Critical Value	0.881

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	133.8
95% Chebyshev (MVUE) UCL	154.9
97.5% Chebyshev (MVUE) UCL	173
99% Chebyshev (MVUE) UCL	208.7

Gamma Distribution Test

k star (bias corrected)	7.532
Theta Star	15.07
nu star	226
Approximate Chi Square Value (.05)	192.2
Adjusted Level of Significance	0.0324
Adjusted Chi Square Value	188.3
Anderson-Darling Test Statistic	0.614
Anderson-Darling 5% Critical Value	0.738
Kolmogorov-Smirnov Test Statistic	0.199
Kolmogorov-Smirnov 5% Critical Value	0.222

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	133.5
95% Adjusted Gamma UCL	136.2

Data Distribution

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	132.2
95% Jackknife UCL	133.5
95% Standard Bootstrap UCL	131.7
95% Bootstrap-t UCL	149.9
95% Hall's Bootstrap UCL	228.8
95% Percentile Bootstrap UCL	132.9
95% BCA Bootstrap UCL	140.7
95% Chebyshev(Mean, Sd) UCL	163.1
97.5% Chebyshev(Mean, Sd) UCL	184.5
99% Chebyshev(Mean, Sd) UCL	226.7

Potential UCL to Use

Use 95% Approximate Gamma UCL 133.5

Result (selenium)

General Statistics

Number of Valid Data	61	Number of Detected Data	29
Number of Distinct Detected Data	29	Number of Non-Detect Data	32
		Percent Non-Detects	52.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.026	Minimum Detected	-3.65
Maximum Detected	0.539	Maximum Detected	-0.618
Mean of Detected	0.174	Mean of Detected	-2.048
SD of Detected	0.137	SD of Detected	0.816
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	25
Single DL Non-Detect Percentage	59.02%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.858	Lilliefors Test Statistic	0.976
5% Lilliefors Critical Value	0.926	5% Lilliefors Critical Value	0.926
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0885	Mean	-3.493
SD	0.125	SD	1.584
95% DL/2 (t) UCL	0.115	95% H-Stat (DL/2) UCL	0.108
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.202
		SD in Log Scale	1.353
		Mean in Original Scale	0.0922
		SD in Original Scale	0.122
		95% Percentile Bootstrap UCL	0.12
		95% BCA Bootstrap UCL	0.124

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.653	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.105	
nu star	95.89	
A-D Test Statistic	0.241	
5% A-D Critical Value	0.759	
K-S Test Statistic	0.759	
5% K-S Critical Value	0.165	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.026	Mean	0.0966
Maximum	0.539	SD	0.119
Mean	0.172	SE of Mean	0.0154
Median	0.166	95% KM (t) UCL	0.122
SD	0.0973	95% KM (z) UCL	0.122
k star	3.217	95% KM (jackknife) UCL	0.12
Theta star	0.0536	95% KM (bootstrap t) UCL	0.128
Nu star	392.4	95% KM (BCA) UCL	0.127
AppChi2	347.5	95% KM (Percentile Bootstrap) UCL	0.127
95% Gamma Approximate UCL	0.195	95% KM (Chebyshev) UCL	0.164
95% Adjusted Gamma UCL	0.195	97.5% KM (Chebyshev) UCL	0.193
		99% KM (Chebyshev) UCL	0.25
		Potential UCLs to Use	
		95% KM (t) UCL	0.122

Note: DL/2 is not a recommended method.

Result (sodium)

General Statistics

Number of Valid Observations	26	Number of Distinct Observations	26

Raw Statistics		Log-transformed Statistics	
Minimum	463	Minimum of Log Data	6.138
Maximum	13500	Maximum of Log Data	9.51
Mean	3576	Mean of log Data	7.751
Median	2765	SD of log Data	0.983
SD	3441		
Coefficient of Variation	0.962		
Skewness	1.687		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.803	Shapiro Wilk Test Statistic	0.956
Shapiro Wilk Critical Value	0.92	Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4729	95% H-UCL	6111
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7172
95% Adjusted-CLT UCL	4925	97.5% Chebyshev (MVUE) UCL	8687
95% Modified-t UCL	4766	99% Chebyshev (MVUE) UCL	11663

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.178	Data appear Gamma Distributed at 5% Significance Level
Theta Star	3035	
nu star	61.26	
Approximate Chi Square Value (.05)	44.26	
Adjusted Level of Significance	0.0398	
Adjusted Chi Square Value	43.31	
Anderson-Darling Test Statistic	0.391	
Anderson-Darling 5% Critical Value	0.766	
Kolmogorov-Smirnov Test Statistic	0.128	
Kolmogorov-Smirnov 5% Critical Value	0.175	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	4686
95% Jackknife UCL	4729
95% Standard Bootstrap UCL	4644
95% Bootstrap-t UCL	5076
95% Hall's Bootstrap UCL	5256
95% Percentile Bootstrap UCL	4698
95% BCA Bootstrap UCL	4919
95% Chebyshev(Mean, Sd) UCL	6518
97.5% Chebyshev(Mean, Sd) UCL	7791
99% Chebyshev(Mean, Sd) UCL	10291

Assuming Gamma Distribution	
95% Approximate Gamma UCL	4950
95% Adjusted Gamma UCL	5059

Potential UCL to Use	Use 95% Approximate Gamma UCL	4950

Result (strontium)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	45

Raw Statistics		Log-transformed Statistics	
Minimum	1.71	Minimum of Log Data	0.536
Maximum	36.4	Maximum of Log Data	3.595
Mean	10.33	Mean of log Data	2.184
Median	8.72	SD of log Data	0.553
SD	6.267		
Coefficient of Variation	0.607		
Skewness	1.943		

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.841
Shapiro Wilk Critical Value	0.946

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	11.87
95% UCLs (Adjusted for Skewness)	
95% Adjusted-CLT UCL	12.11
95% Modified-t UCL	11.91

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.98
Shapiro Wilk Critical Value	0.946

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	12.11
95% Chebyshev (MVUE) UCL	14.17
97.5% Chebyshev (MVUE) UCL	15.83
99% Chebyshev (MVUE) UCL	19.11

Gamma Distribution Test

k star (bias corrected)	3.267
Theta Star	3.162
nu star	307.1
Approximate Chi Square Value (.05)	267.5
Adjusted Level of Significance	0.0449
Adjusted Chi Square Value	266.3
Anderson-Darling Test Statistic	0.661
Anderson-Darling 5% Critical Value	0.755
Kolmogorov-Smirnov Test Statistic	0.128
Kolmogorov-Smirnov 5% Critical Value	0.13

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	11.86
95% Adjusted Gamma UCL	11.91

Data Distribution

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	11.83
95% Jackknife UCL	11.87
95% Standard Bootstrap UCL	11.79
95% Bootstrap-t UCL	12.24
95% Hall's Bootstrap UCL	12.46
95% Percentile Bootstrap UCL	11.86
95% BCA Bootstrap UCL	12.06
95% Chebyshev(Mean, Sd) UCL	14.32
97.5% Chebyshev(Mean, Sd) UCL	16.04
99% Chebyshev(Mean, Sd) UCL	19.43

Potential UCL to Use

Use 95% Approximate Gamma UCL 11.86

Result (sulfate)

General Statistics

Number of Valid Observations	70	Number of Distinct Observations	67

Raw Statistics

Minimum	3160
Maximum	33300
Mean	8289
Median	7215
SD	5307
Coefficient of Variation	0.64
Skewness	2.232

Log-transformed Statistics

Minimum of Log Data	8.058
Maximum of Log Data	10.41
Mean of log Data	8.87
SD of log Data	0.534

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.167
Lilliefors Critical Value	0.106

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.0979
Lilliefors Critical Value	0.106

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	9347

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	9513
95% Modified-t UCL	9375

Assuming Lognormal Distribution

95% H-UCL	9258
95% Chebyshev (MVUE) UCL	10604
97.5% Chebyshev (MVUE) UCL	11650
99% Chebyshev (MVUE) UCL	13704

Gamma Distribution Test

k star (bias corrected)	3.296
Theta Star	2515
nu star	461.4
Approximate Chi Square Value (.05)	412.6
Adjusted Level of Significance	0.0466
Adjusted Chi Square Value	411.7
Anderson-Darling Test Statistic	1.213
Anderson-Darling 5% Critical Value	0.757
Kolmogorov-Smirnov Test Statistic	0.108
Kolmogorov-Smirnov 5% Critical Value	0.107

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	9270
95% Adjusted Gamma UCL	9291

Data Distribution

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	9333
95% Jackknife UCL	9347
95% Standard Bootstrap UCL	9320
95% Bootstrap-t UCL	9582
95% Hall's Bootstrap UCL	9628
95% Percentile Bootstrap UCL	9321
95% BCA Bootstrap UCL	9623
95% Chebyshev(Mean, Sd) UCL	11054
97.5% Chebyshev(Mean, Sd) UCL	12251
99% Chebyshev(Mean, Sd) UCL	14601

Potential UCL to Use

Use 95% H-UCL 9258

Result (tin)

General Statistics

Number of Valid Data	59	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	52
		Percent Non-Detects	88.14%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.025	Minimum Detected	-3.689
Maximum Detected	0.204	Maximum Detected	-1.59
Mean of Detected	0.0867	Mean of Detected	-2.785
SD of Detected	0.0738	SD of Detected	0.897
Minimum Non-Detect	0.025	Minimum Non-Detect	-3.689
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	56
Number treated as Detected	3
Single DL Non-Detect Percentage	94.92%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.818	Lilliefors Test Statistic	0.839
5% Lilliefors Critical Value	0.803	5% Lilliefors Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0226	Mean	-4.146
SD	0.0343	SD	0.633
95% DL/2 (t) UCL	0.03	95% H-Stat (DL/2) UCL	0.0203
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.686
		SD in Log Scale	2.284
		Mean in Original Scale	0.0125
		SD in Original Scale	0.0365
		95% Percentile Bootstrap UCL	0.0203
		95% BCA Bootstrap UCL	0.0235

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.02	Data appear Normal at 5% Significance Level
Theta Star	0.085	
nu star	14.28	
A-D Test Statistic	0.655	
5% A-D Critical Value	0.72	
K-S Test Statistic	0.72	
5% K-S Critical Value	0.317	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0323
Maximum	1.499	SD	0.0309
Mean	0.673	SE of Mean	0.00434
Median	0.644	95% KM (t) UCL	0.0396
SD	0.468	95% KM (z) UCL	0.0395
k star	0.765	95% KM (jackknife) UCL	0.0379
Theta star	0.88	95% KM (bootstrap t) UCL	0.0451
Nu star	90.25	95% KM (BCA) UCL	0.121
AppChi2	69.34	95% KM (Percentile Bootstrap) UCL	0.0447
95% Gamma Approximate UCL	0.876	95% KM (Chebyshev) UCL	0.0513
95% Adjusted Gamma UCL	0.882	97.5% KM (Chebyshev) UCL	0.0594
		99% KM (Chebyshev) UCL	0.0755
		Potential UCLs to Use	
		95% KM (t) UCL	0.0396
		95% KM (Percentile Bootstrap) UCL	0.0447

Note: DL/2 is not a recommended method.

Result (trichloroethylene)

General Statistics

Number of Valid Data	70	Number of Detected Data	33
Number of Distinct Detected Data	33	Number of Non-Detect Data	37
		Percent Non-Detects	52.86%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.001	Minimum Detected	-6.908
Maximum Detected	0.208	Maximum Detected	-1.57
Mean of Detected	0.0613	Mean of Detected	-3.593
SD of Detected	0.0667	SD of Detected	1.549
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.778	Lilliefors Test Statistic	0.905
5% Lilliefors Critical Value	0.931	5% Lilliefors Critical Value	0.931
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0292	Mean	-5.711
SD	0.0547	SD	2.274
95% DL/2 (t) UCL	0.0401	95% H-Stat (DL/2) UCL	0.0448
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.687
		SD in Log Scale	2.487
		Mean in Original Scale	0.0295
		SD in Original Scale	0.0546
		95% Percentile Bootstrap UCL	0.0404
		95% BCA Bootstrap UCL	0.0427

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.7	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.0876	
nu star	46.2	
A-D Test Statistic	0.595	
5% A-D Critical Value	0.788	
K-S Test Statistic	0.788	
5% K-S Critical Value	0.159	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0294
Maximum	0.211	SD	0.0542
Mean	0.0705	SE of Mean	0.00658
Median	0.0482	95% KM (t) UCL	0.0404
SD	0.0681	95% KM (z) UCL	0.0402
k star	0.3	95% KM (jackknife) UCL	0.0402
Theta star	0.235	95% KM (bootstrap t) UCL	0.0425
Nu star	41.93	95% KM (BCA) UCL	0.0411
AppChi2	28.09	95% KM (Percentile Bootstrap) UCL	0.0402
95% Gamma Approximate UCL	0.105	95% KM (Chebyshev) UCL	0.0581
95% Adjusted Gamma UCL	0.106	97.5% KM (Chebyshev) UCL	0.0705
		99% KM (Chebyshev) UCL	0.0949
		Potential UCLs to Use	
		95% KM (t) UCL	0.0404

Note: DL/2 is not a recommended method.

Result (vanadium (fume or dust))

General Statistics

Number of Valid Data	59	Number of Detected Data	45
Number of Distinct Detected Data	36	Number of Non-Detect Data	14
		Percent Non-Detects	23.73%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.12	Maximum Detected	-2.12
Mean of Detected	0.0343	Mean of Detected	-3.583
SD of Detected	0.0219	SD of Detected	0.698
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	29
Number treated as Detected	30
Single DL Non-Detect Percentage	49.15%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.903	Lilliefors Test Statistic	0.965
5% Lilliefors Critical Value	0.945	5% Lilliefors Critical Value	0.945
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0281	Mean	-3.936
SD	0.0223	SD	0.965
95% DL/2 (t) UCL	0.033	95% H-Stat (DL/2) UCL	0.0362
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0237	Mean in Log Scale	-3.882
SD	0.028	SD in Log Scale	0.848
95% MLE (t) UCL	0.0298	Mean in Original Scale	0.0283
95% MLE (Tiku) UCL	0.0312	SD in Original Scale	0.0221
		95% Percentile Bootstrap UCL	0.0329
		95% BCA Bootstrap UCL	0.0341

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.379	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.0144	
nu star	214.1	
A-D Test Statistic	0.207	
5% A-D Critical Value	0.758	
K-S Test Statistic	0.758	
5% K-S Critical Value	0.133	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0282
Maximum	0.12	SD	0.022
Mean	0.0302	SE of Mean	0.00292
Median	0.028	95% KM (t) UCL	0.0331
SD	0.0215	95% KM (z) UCL	0.033
k star	0.995	95% KM (jackknife) UCL	0.033
Theta star	0.0304	95% KM (bootstrap t) UCL	0.034
Nu star	117.4	95% KM (BCA) UCL	0.0331
AppChi2	93.43	95% KM (Percentile Bootstrap) UCL	0.033
95% Gamma Approximate UCL	0.038	95% KM (Chebyshev) UCL	0.0409
95% Adjusted Gamma UCL	0.0382	97.5% KM (Chebyshev) UCL	0.0465
		99% KM (Chebyshev) UCL	0.0573
		Potential UCLs to Use	
		95% KM (Percentile Bootstrap) UCL	0.033

Note: DL/2 is not a recommended method.

Result (zinc)

General Statistics

Number of Valid Data	70	Number of Detected Data	21
Number of Distinct Detected Data	13	Number of Non-Detect Data	49
		Percent Non-Detects	70.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.56	Maximum Detected	-0.58
Mean of Detected	0.0421	Mean of Detected	-4.111
SD of Detected	0.119	SD of Detected	1.005
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	5
Single DL Non-Detect Percentage	92.86%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.289
5% Lilliefors Critical Value	0.908

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.797
5% Lilliefors Critical Value	0.908

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0165
SD	0.0664
95% DL/2 (t) UCL	0.0298
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.049
SD	1.004
95% H-Stat (DL/2) UCL	0.0124
Log ROS Method	
Mean in Log Scale	-5.876
SD in Log Scale	1.583
Mean in Original Scale	0.0143
SD in Original Scale	0.0667
95% Percentile Bootstrap UCL	0.0301
95% BCA Bootstrap UCL	0.0395

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.587
Theta Star	0.0718
nu star	24.64
A-D Test Statistic	3.357
5% A-D Critical Value	0.792
K-S Test Statistic	0.792
5% K-S Critical Value	0.198

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.56
Mean	0.0942
Median	0.0335
SD	0.125
k star	0.228
Theta star	0.414
Nu star	31.86
AppChi2	19.96
95% Gamma Approximate UCL	0.15
95% Adjusted Gamma UCL	0.152

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0166
SD	0.0658
SE of Mean	0.00806
95% KM (t) UCL	0.03
95% KM (z) UCL	0.0298
95% KM (jackknife) UCL	0.0298
95% KM (bootstrap t) UCL	0.114
95% KM (BCA) UCL	0.0328
95% KM (Percentile Bootstrap) UCL	0.0324
95% KM (Chebyshev) UCL	0.0517
97.5% KM (Chebyshev) UCL	0.0669
99% KM (Chebyshev) UCL	0.0968

Potential UCLs to Use

95% KM (BCA) UCL	0.0328

Attachment C – ProUCL Output for SWMU 148

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (arsenic)

General Statistics

Number of Valid Data	10	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	4
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.92	Minimum Detected	1.072
Maximum Detected	8.56	Maximum Detected	2.147
Mean of Detected	4.527	Mean of Detected	1.441
SD of Detected	2.075	SD of Detected	0.383
Minimum Non-Detect	2.96	Minimum Non-Detect	1.085
Maximum Non-Detect	3.12	Maximum Non-Detect	1.138

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	5
Number treated as Detected	5
Single DL Non-Detect Percentage	50.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.751	Shapiro Wilk Test Statistic	0.846
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.323	Mean	1.031
SD	2.193	SD	0.601
95% DL/2 (t) UCL	4.594	95% H-Stat (DL/2) UCL	4.467
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.876	Mean in Log Scale	1.22
SD	2.663	SD in Log Scale	0.408
95% MLE (t) UCL	4.42	Mean in Original Scale	3.691
95% MLE (Tiku) UCL	4.787	SD in Original Scale	1.891
		95% Percentile Bootstrap UCL	4.721
		95% BCA Bootstrap UCL	5.076

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.825	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.183	
nu star	45.9	
A-D Test Statistic	0.637	
5% A-D Critical Value	0.698	
K-S Test Statistic	0.698	
5% K-S Critical Value	0.333	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	2.532	Mean	3.884
Maximum	8.56	SD	1.665
Mean	4.264	SE of Mean	0.577
Median	3.837	95% KM (t) UCL	4.941
SD	1.694	95% KM (z) UCL	4.833
k star	6.417	95% KM (jackknife) UCL	4.828
Theta star	0.664	95% KM (bootstrap t) UCL	7.461
Nu star	128.3	95% KM (BCA) UCL	5.307
AppChi2	103.2	95% KM (Percentile Bootstrap) UCL	5.04
95% Gamma Approximate UCL	5.304	95% KM (Chebyshev) UCL	6.398
95% Adjusted Gamma UCL	5.513	97.5% KM (Chebyshev) UCL	7.486
		99% KM (Chebyshev) UCL	9.623
		Potential UCLs to Use	
		95% KM (t) UCL	4.941

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics

Minimum	47.4
Maximum	112
Mean	86.15
Median	89.9
SD	19.76
Coefficient of Variation	0.229
Skewness	-0.608

Log-transformed Statistics

Minimum of Log Data	3.859
Maximum of Log Data	4.718
Mean of log Data	4.429
SD of log Data	0.257

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.941
Shapiro Wilk Critical Value	0.842

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	97.61

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	95.15
95% Modified-t UCL	97.41

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.891
Shapiro Wilk Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	102.2
95% Chebyshev (MVUE) UCL	117.1
97.5% Chebyshev (MVUE) UCL	130.4
99% Chebyshev (MVUE) UCL	156.5

Gamma Distribution Test

k star (bias corrected)	12.97
Theta Star	6.643
nu star	259.4
Approximate Chi Square Value (.05)	223.1
Adjusted Level of Significance	0.0267
Adjusted Chi Square Value	217.2
Anderson-Darling Test Statistic	0.407
Anderson-Darling 5% Critical Value	0.725
Kolmogorov-Smirnov Test Statistic	0.183
Kolmogorov-Smirnov 5% Critical Value	0.266

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	100.2
95% Adjusted Gamma UCL	102.9

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	96.43
95% Jackknife UCL	97.61
95% Standard Bootstrap UCL	95.98
95% Bootstrap-t UCL	96.49
95% Hall's Bootstrap UCL	95.93
95% Percentile Bootstrap UCL	95.21
95% BCA Bootstrap UCL	94.87
95% Chebyshev(Mean, Sd) UCL	113.4
97.5% Chebyshev(Mean, Sd) UCL	125.2
99% Chebyshev(Mean, Sd) UCL	148.3

Potential UCL to Use

Use 95% Student's-t UCL 97.61

Result (lead)

General Statistics

Number of Valid Data	10	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	1
		Percent Non-Detects	10.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.65	Minimum Detected	1.295
Maximum Detected	8.17	Maximum Detected	2.1
Mean of Detected	5.608	Mean of Detected	1.692
SD of Detected	1.487	SD of Detected	0.273
Minimum Non-Detect	2.8	Minimum Non-Detect	1.03
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.953	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.187	Mean	1.556
SD	1.933	SD	0.5
95% DL/2 (t) UCL	6.308	95% H-Stat (DL/2) UCL	7.776
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.249	Mean in Log Scale	1.625
SD	1.724	SD in Log Scale	0.333
95% MLE (t) UCL	6.249	Mean in Original Scale	5.325
95% MLE (Tiku) UCL	6.268	SD in Original Scale	1.662
		95% Percentile Bootstrap UCL	6.19
		95% BCA Bootstrap UCL	6.15

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	10.49	Data appear Normal at 5% Significance Level
Theta Star	0.535	
nu star	188.8	
A-D Test Statistic	0.293	
5% A-D Critical Value	0.721	
K-S Test Statistic	0.721	
5% K-S Critical Value	0.279	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	2.796	Mean	5.412
Maximum	8.17	SD	1.454
Mean	5.327	SE of Mean	0.488
Median	5.61	95% KM (t) UCL	6.306
SD	1.66	95% KM (z) UCL	6.214
k star	7.585	95% KM (jackknife) UCL	6.296
Theta star	0.702	95% KM (bootstrap t) UCL	6.4
Nu star	151.7	95% KM (BCA) UCL	6.259
AppChi2	124.2	95% KM (Percentile Bootstrap) UCL	6.192
95% Gamma Approximate UCL	6.504	95% KM (Chebyshev) UCL	7.538
95% Adjusted Gamma UCL	6.739	97.5% KM (Chebyshev) UCL	8.458
		99% KM (Chebyshev) UCL	10.26
		Potential UCLs to Use	
		95% KM (t) UCL	6.306
		95% KM (Percentile Bootstrap) UCL	6.192

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (arsenic)

General Statistics

Number of Valid Data	36	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	19
		Percent Non-Detects	52.78%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.59	Minimum Detected	-0.528
Maximum Detected	9.64	Maximum Detected	2.266
Mean of Detected	3.631	Mean of Detected	1.049
SD of Detected	2.465	SD of Detected	0.771
Minimum Non-Detect	0.42	Minimum Non-Detect	-0.868
Maximum Non-Detect	3.47	Maximum Non-Detect	1.244

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	29
Number treated as Detected	7
Single DL Non-Detect Percentage	80.56%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.868
5% Shapiro Wilk Critical Value	0.892

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.92
5% Shapiro Wilk Critical Value	0.892

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.501
SD	2.014
95% DL/2 (t) UCL	3.068
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	0.649
SD	0.78
95% H-Stat (DL/2) UCL	3.089
Log ROS Method	
Mean in Log Scale	0.489
SD in Log Scale	0.796
Mean in Original Scale	2.267
SD in Original Scale	2.132
95% Percentile Bootstrap UCL	2.873
95% BCA Bootstrap UCL	3.044

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.878
Theta Star	1.934
nu star	63.85
A-D Test Statistic	0.52
5% A-D Critical Value	0.748
K-S Test Statistic	0.748
5% K-S Critical Value	0.211

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.59
Maximum	9.64
Mean	3.617
Median	3.635
SD	1.684
k star	4.123
Theta star	0.877
Nu star	296.9
AppChi2	257.9
95% Gamma Approximate UCL	4.163
95% Adjusted Gamma UCL	4.189

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	2.415
SD	2.114
SE of Mean	0.404
95% KM (t) UCL	3.097
95% KM (z) UCL	3.079
95% KM (jackknife) UCL	3.087
95% KM (bootstrap t) UCL	3.195
95% KM (BCA) UCL	3.23
95% KM (Percentile Bootstrap) UCL	3.142
95% KM (Chebyshev) UCL	4.175
97.5% KM (Chebyshev) UCL	4.936
99% KM (Chebyshev) UCL	6.432

Potential UCLs to Use

95% KM (t) UCL	3.097

Result (barium)

General Statistics

Number of Valid Data	36	Number of Detected Data	30
Number of Distinct Detected Data	29	Number of Non-Detect Data	6
		Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	36	Minimum Detected	3.584
Maximum Detected	179	Maximum Detected	5.187
Mean of Detected	84.4	Mean of Detected	4.376
SD of Detected	29.61	SD of Detected	0.357
Minimum Non-Detect	88	Minimum Non-Detect	4.477
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	32
Number treated as Detected	4
Single DL Non-Detect Percentage	88.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.957
5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	78.35	Mean	4.292
SD	30.28	SD	0.378
95% DL/2 (t) UCL	86.87	95% H-Stat (DL/2) UCL	100.8
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	40.56	Mean in Log Scale	4.347
SD	56.46	SD in Log Scale	0.335
95% MLE (t) UCL	56.46	Mean in Original Scale	81.51
95% MLE (Tiku) UCL	102.5	SD in Original Scale	27.9
		95% Percentile Bootstrap UCL	89.51
		95% BCA Bootstrap UCL	89.61

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	7.763	Data appear Normal at 5% Significance Level
Theta Star	10.87	
nu star	465.8	
A-D Test Statistic	0.468	
5% A-D Critical Value	0.746	
K-S Test Statistic	0.746	
5% K-S Critical Value	0.16	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	36	Mean	81.78
Maximum	179	SD	28.13
Mean	83.97	SE of Mean	4.944
Median	82.95	95% KM (t) UCL	90.13
SD	27.35	95% KM (z) UCL	89.91
k star	9.137	95% KM (jackknife) UCL	90.14
Theta star	9.19	95% KM (bootstrap t) UCL	90.66
Nu star	657.9	95% KM (BCA) UCL	89.4
AppChi2	599.4	95% KM (Percentile Bootstrap) UCL	89.7
95% Gamma Approximate UCL	92.16	95% KM (Chebyshev) UCL	103.3
95% Adjusted Gamma UCL	92.55	97.5% KM (Chebyshev) UCL	112.6
		99% KM (Chebyshev) UCL	131
		Potential UCLs to Use	
		95% KM (t) UCL	90.13
		95% KM (Percentile Bootstrap) UCL	89.7

Note: DL/2 is not a recommended method.

Result (lead)

General Statistics

Number of Valid Data	36	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	21
		Percent Non-Detects	58.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.65	Minimum Detected	1.295
Maximum Detected	14.7	Maximum Detected	2.688
Mean of Detected	5.989	Mean of Detected	1.72
SD of Detected	2.743	SD of Detected	0.361
Minimum Non-Detect	1.28	Minimum Non-Detect	0.247
Maximum Non-Detect	27	Maximum Non-Detect	3.296

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.726	Shapiro Wilk Test Statistic	0.89
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.255	Mean	1.341
SD	4.083	SD	0.839
95% DL/2 (t) UCL	6.405	95% H-Stat (DL/2) UCL	8.26
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.279
		SD in Log Scale	0.483
		Mean in Original Scale	4.08
		SD in Original Scale	2.463
		95% Percentile Bootstrap UCL	4.798
		95% BCA Bootstrap UCL	4.962

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.892	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.017	
nu star	176.8	
A-D Test Statistic	0.693	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.222	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1.819
Maximum	14.7
Mean	6.723
Median	5.724
SD	2.848
k star	5.896
Theta star	1.14
Nu star	424.5
AppChi2	377.7
95% Gamma Approximate UCL	7.555
95% Adjusted Gamma UCL	7.595

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	4.848
SD	2.211
SE of Mean	0.42
95% KM (t) UCL	5.558
95% KM (z) UCL	5.54
95% KM (jackknife) UCL	5.482
95% KM (bootstrap t) UCL	6.035
95% KM (BCA) UCL	5.665
95% KM (Percentile Bootstrap) UCL	5.653
95% KM (Chebyshev) UCL	6.68
97.5% KM (Chebyshev) UCL	7.473
99% KM (Chebyshev) UCL	9.03
Potential UCLs to Use	
95% KM (t) UCL	5.558

Result (silver)

General Statistics

Number of Valid Data	36	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	24
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.84	Minimum Detected	2.179
Maximum Detected	74.8	Maximum Detected	4.315
Mean of Detected	43.46	Mean of Detected	3.576
SD of Detected	23.42	SD of Detected	0.733
Minimum Non-Detect	2.1	Minimum Non-Detect	0.742
Maximum Non-Detect	34.7	Maximum Non-Detect	3.547

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	27
Number treated as Detected	9
Single DL Non-Detect Percentage	75.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.922	Shapiro Wilk Test Statistic	0.858
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	21.77	Mean	2.586
SD	21	SD	1.11
95% DL/2 (t) UCL	27.68	95% H-Stat (DL/2) UCL	33.81
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	13.39	Mean in Log Scale	2.321
SD	31.75	SD in Log Scale	1.016
95% MLE (t) UCL	22.34	Mean in Original Scale	18.24
95% MLE (Tiku) UCL	31.31	SD in Original Scale	22.38
		95% Percentile Bootstrap UCL	24.59
		95% BCA Bootstrap UCL	25.38

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.083	Data appear Normal at 5% Significance Level
Theta Star	20.87	
nu star	49.99	
A-D Test Statistic	0.547	
5% A-D Critical Value	0.74	
K-S Test Statistic	0.74	
5% K-S Critical Value	0.248	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	8.84	Mean	20.75
Maximum	74.8	SD	20.68
Mean	42.25	SE of Mean	3.619
Median	44.88	95% KM (t) UCL	26.86
SD	14.27	95% KM (z) UCL	26.7
k star	6.174	95% KM (jackknife) UCL	26.06
Theta star	6.843	95% KM (bootstrap t) UCL	27.72
Nu star	444.5	95% KM (BCA) UCL	41.63
AppChi2	396.6	95% KM (Percentile Bootstrap) UCL	31.94
95% Gamma Approximate UCL	47.34	95% KM (Chebyshev) UCL	36.53
95% Adjusted Gamma UCL	47.59	97.5% KM (Chebyshev) UCL	43.35
		99% KM (Chebyshev) UCL	56.76
		Potential UCLs to Use	
		95% KM (t) UCL	26.86
		95% KM (Percentile Bootstrap) UCL	31.94

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (1,1-dichloroethane)

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00153	Minimum Detected	-6.482
Maximum Detected	0.0019	Maximum Detected	-6.266
Mean of Detected	0.00173	Mean of Detected	-6.363
SD of Detected	0.000143	SD of Detected	0.0832
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Test Statistic	0.955
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000934	Mean	-7.164
SD	0.00061	SD	0.611
95% DL/2 (t) UCL	0.00119	95% H-Stat (DL/2) UCL	0.000932
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.00173	Mean in Log Scale	-6.555
SD	0.00013	SD in Log Scale	0.176
95% MLE (t) UCL	0.00178	Mean in Original Scale	0.00144
95% MLE (Tiku) UCL	0.00182	SD in Original Scale	0.000256
		95% Percentile Bootstrap UCL	0.00155
		95% BCA Bootstrap UCL	0.00155

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	87.25	Data appear Normal at 5% Significance Level
Theta Star	1.98E-05	
nu star	1047	
A-D Test Statistic	0.239	
5% A-D Critical Value	0.696	
K-S Test Statistic	0.696	
5% K-S Critical Value	0.332	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0015	Mean	0.0016
Maximum	0.00204	SD	0.000122
Mean	0.0018	SE of Mean	3.25E-05
Median	0.00184	95% KM (t) UCL	0.00166
SD	0.000165	95% KM (z) UCL	0.00165
k star	102.2	95% KM (jackknife) UCL	0.00167
Theta star	1.76E-05	95% KM (bootstrap t) UCL	0.00166
Nu star	3474	95% KM (BCA) UCL	0.0018
AppChi2	3338	95% KM (Percentile Bootstrap) UCL	0.00172
95% Gamma Approximate UCL	0.00188	95% KM (Chebyshev) UCL	0.00174
95% Adjusted Gamma UCL	0.00188	97.5% KM (Chebyshev) UCL	0.0018
		99% KM (Chebyshev) UCL	0.00192
		Potential UCLs to Use	
		95% KM (t) UCL	0.00166
		95% KM (Percentile Bootstrap) UCL	0.00172

Note: DL/2 is not a recommended method.

Result (aluminum)

General Statistics

Number of Valid Data	12	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	6
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.051	Minimum Detected	-2.976
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	1.335	Mean of Detected	-0.407
SD of Detected	1.426	SD of Detected	1.536
Minimum Non-Detect	0.03	Minimum Non-Detect	-3.507
Maximum Non-Detect	0.03	Maximum Non-Detect	-3.507

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.87	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.675	Mean	-2.303
SD	1.183	SD	2.235
95% DL/2 (t) UCL	1.288	95% H-Stat (DL/2) UCL	4.543
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.647
		SD in Log Scale	2.734
		Mean in Original Scale	0.675
		SD in Original Scale	1.183
		95% Percentile Bootstrap UCL	1.265
		95% BCA Bootstrap UCL	1.431

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.534	Data appear Normal at 5% Significance Level
Theta Star	2.497	
nu star	6.413	
A-D Test Statistic	0.163	
5% A-D Critical Value	0.719	
K-S Test Statistic	0.719	
5% K-S Critical Value	0.342	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.693
Maximum	3.9	SD	1.122
Mean	1.349	SE of Mean	0.355
Median	1.031	95% KM (t) UCL	1.33
SD	1.323	95% KM (z) UCL	1.276
k star	0.29	95% KM (jackknife) UCL	1.249
Theta star	4.658	95% KM (bootstrap t) UCL	1.67
Nu star	6.952	95% KM (BCA) UCL	1.642
AppChi2	2.144	95% KM (Percentile Bootstrap) UCL	1.479
95% Gamma Approximate UCL	4.374	95% KM (Chebyshev) UCL	2.239
95% Adjusted Gamma UCL	5.327	97.5% KM (Chebyshev) UCL	2.909
		99% KM (Chebyshev) UCL	4.223
		Potential UCLs to Use	
		95% KM (t) UCL	1.33
		95% KM (Percentile Bootstrap) UCL	1.479

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Data	16	Number of Detected Data	10
Number of Distinct Detected Data	8	Number of Non-Detect Data	6
		Percent Non-Detects	37.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	0.042	Maximum Detected	-3.17
Mean of Detected	0.0186	Mean of Detected	-4.134
SD of Detected	0.0117	SD of Detected	0.549
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	16
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.772	Shapiro Wilk Test Statistic	0.826
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0248	Mean	-3.995
SD	0.0181	SD	0.829
95% DL/2 (t) UCL	0.0327	95% H-Stat (DL/2) UCL	0.0715
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.345
		SD in Log Scale	0.654
		Mean in Original Scale	0.0158
		SD in Original Scale	0.0108
		95% Percentile Bootstrap UCL	0.0204
		95% BCA Bootstrap UCL	0.021

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.523	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.00737	
nu star	50.47	
A-D Test Statistic	0.886	
5% A-D Critical Value	0.731	
K-S Test Statistic	0.731	
5% K-S Critical Value	0.268	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.00217	Mean	0.0172
Maximum	0.042	SD	0.0106
Mean	0.0176	SE of Mean	0.00323
Median	0.0125	95% KM (t) UCL	0.0228
SD	0.0111	95% KM (z) UCL	0.0225
k star	2.06	95% KM (jackknife) UCL	0.0228
Theta star	0.00853	95% KM (bootstrap t) UCL	0.0278
Nu star	65.91	95% KM (BCA) UCL	0.0224
AppChi2	48.23	95% KM (Percentile Bootstrap) UCL	0.0226
95% Gamma Approximate UCL	0.024	95% KM (Chebyshev) UCL	0.0312
95% Adjusted Gamma UCL	0.0249	97.5% KM (Chebyshev) UCL	0.0373
		99% KM (Chebyshev) UCL	0.0493
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.0224

Note: DL/2 is not a recommended method.

Result (beryllium)

General Statistics

Number of Valid Data	15	Number of Detected Data	5
Number of Distinct Detected Data	4	Number of Non-Detect Data	10
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.003	Minimum Detected	-5.809
Maximum Detected	0.008	Maximum Detected	-4.828
Mean of Detected	0.0052	Mean of Detected	-5.328
SD of Detected	0.00217	SD of Detected	0.415
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0025	Maximum Non-Detect	-5.991

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	5
Single DL Non-Detect Percentage	66.67%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.871	Shapiro Wilk Test Statistic	0.897
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00253	Mean	-6.262
SD	0.00227	SD	0.723
95% DL/2 (t) UCL	0.00357	95% H-Stat (DL/2) UCL	0.00265
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.000854	Mean in Log Scale	-6.347
SD	0.00394	SD in Log Scale	0.885
95% MLE (t) UCL	0.00264	Mean in Original Scale	0.00252
95% MLE (Tiku) UCL	0.00372	SD in Original Scale	0.00232
		95% Percentile Bootstrap UCL	0.00356
		95% BCA Bootstrap UCL	0.00372

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.082	Data appear Normal at 5% Significance Level
Theta Star	0.00169	
nu star	30.82	
A-D Test Statistic	0.44	
5% A-D Critical Value	0.68	
K-S Test Statistic	0.68	
5% K-S Critical Value	0.358	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.003	Mean	0.00373
Maximum	0.008	SD	0.00153
Mean	0.00509	SE of Mean	0.000441
Median	0.00495	95% KM (t) UCL	0.00451
SD	0.00118	95% KM (z) UCL	0.00446
k star	16.86	95% KM (jackknife) UCL	0.00452
Theta star	0.000302	95% KM (bootstrap t) UCL	0.00534
Nu star	505.7	95% KM (BCA) UCL	0.00707
AppChi2	454.6	95% KM (Percentile Bootstrap) UCL	0.005
95% Gamma Approximate UCL	0.00566	95% KM (Chebyshev) UCL	0.00565
95% Adjusted Gamma UCL	0.00574	97.5% KM (Chebyshev) UCL	0.00648
		99% KM (Chebyshev) UCL	0.00812
		Potential UCLs to Use	
		95% KM (t) UCL	0.00451
		95% KM (Percentile Bootstrap) UCL	0.005

Note: DL/2 is not a recommended method.

Result (boron)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		Log-transformed Statistics	
Minimum	2.75	Minimum of Log Data	1.012
Maximum	5.23	Maximum of Log Data	1.654
Mean	4.251	Mean of log Data	1.434
Median	4.34	SD of log Data	0.177
SD	0.694		
Coefficient of Variation	0.163		
Skewness	-0.697		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.954	Shapiro Wilk Test Statistic	0.912
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.611	95% H-UCL	4.696
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.205
95% Adjusted-CLT UCL	4.537	97.5% Chebyshev (MVUE) UCL	5.617
95% Modified-t UCL	4.604	99% Chebyshev (MVUE) UCL	6.426

Gamma Distribution Test		Data Distribution
k star (bias corrected)	27.82	**Data appear Normal at 5% Significance Level**
Theta Star	0.153	
nu star	667.7	
Approximate Chi Square Value (.05)	608.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 4.58
Adjusted Chi Square Value	600.1	95% Jackknife UCL 4.611
		95% Standard Bootstrap UCL 4.566
Anderson-Darling Test Statistic	0.344	95% Bootstrap-t UCL 4.57
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 4.534
Kolmogorov-Smirnov Test Statistic	0.178	95% Percentile Bootstrap UCL 4.549
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 4.533
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 5.124
		97.5% Chebyshev(Mean, Sd) UCL 5.502
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 6.245
95% Approximate Gamma UCL	4.662	
95% Adjusted Gamma UCL	4.729	

Potential UCL to Use	Use 95% Student's-t UCL 4.611

Result (bromide)

General Statistics

Number of Valid Data	15	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	8
		Percent Non-Detects	53.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.52	Minimum Detected	-0.654
Maximum Detected	3.43	Maximum Detected	1.233
Mean of Detected	1.307	Mean of Detected	0.0437
SD of Detected	1.042	SD of Detected	0.691
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1	Maximum Non-Detect	0

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	3
Single DL Non-Detect Percentage	80.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.771	Shapiro Wilk Test Statistic	0.875
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.69	Mean	-1.1
SD	0.912	SD	1.262
95% DL/2 (t) UCL	1.105	95% H-Stat (DL/2) UCL	1.232
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.936
		SD in Log Scale	1.134
		Mean in Original Scale	0.712
		SD in Original Scale	0.896
		95% Percentile Bootstrap UCL	1.115
		95% BCA Bootstrap UCL	1.239

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.458	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.897	
nu star	20.41	
A-D Test Statistic	0.585	
5% A-D Critical Value	0.714	
K-S Test Statistic	0.714	
5% K-S Critical Value	0.315	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0134	Mean	0.89
Maximum	3.43	SD	0.766
Mean	1.366	SE of Mean	0.214
Median	1.368	95% KM (t) UCL	1.267
SD	0.916	95% KM (z) UCL	1.242
k star	1.146	95% KM (jackknife) UCL	1.222
Theta star	1.192	95% KM (bootstrap t) UCL	1.632
Nu star	34.39	95% KM (BCA) UCL	1.365
AppChi2	21.98	95% KM (Percentile Bootstrap) UCL	1.322
95% Gamma Approximate UCL	2.138	95% KM (Chebyshev) UCL	1.822
95% Adjusted Gamma UCL	2.263	97.5% KM (Chebyshev) UCL	2.225
		99% KM (Chebyshev) UCL	3.017
		Potential UCLs to Use	
		95% KM (t) UCL	1.267

Note: DL/2 is not a recommended method.

Result (chloride (cl))

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	16

Raw Statistics		Log-transformed Statistics	
Minimum	297	Minimum of Log Data	5.694
Maximum	2450	Maximum of Log Data	7.804
Mean	1189	Mean of log Data	6.744
Median	476	SD of log Data	0.858
SD	937.5		
Coefficient of Variation	0.788		
Skewness	0.414		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.72	Shapiro Wilk Test Statistic	0.762
Shapiro Wilk Critical Value	0.892	Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1586	95% H-UCL	2072
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2365
95% Adjusted-CLT UCL	1588	97.5% Chebyshev (MVUE) UCL	2872
95% Modified-t UCL	1590	99% Chebyshev (MVUE) UCL	3868

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.382	Data do not follow a Discernable Distribution (0.05)
Theta Star	860.6	
nu star	46.98	
Approximate Chi Square Value (.05)	32.25	**Nonparametric Statistics**
Adjusted Level of Significance	0.0346	95% CLT UCL 1563
Adjusted Chi Square Value	30.98	95% Jackknife UCL 1586
		95% Standard Bootstrap UCL 1557
Anderson-Darling Test Statistic	2.121	95% Bootstrap-t UCL 1608
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL 1535
Kolmogorov-Smirnov Test Statistic	0.299	95% Percentile Bootstrap UCL 1545
Kolmogorov-Smirnov 5% Critical Value	0.213	95% BCA Bootstrap UCL 1566
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2180
		97.5% Chebyshev(Mean, Sd) UCL 2609
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 3452
95% Approximate Gamma UCL	1732	
95% Adjusted Gamma UCL	1804	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 2180

Result (chloroform)

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0014	Minimum Detected	-6.571
Maximum Detected	0.00219	Maximum Detected	-6.124
Mean of Detected	0.0018	Mean of Detected	-6.327
SD of Detected	0.000267	SD of Detected	0.151
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.99
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.979
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00096
SD	0.000659
95% DL/2 (t) UCL	0.00124
Maximum Likelihood Estimate(MLE) Method	
Mean	0.0018
SD	0.000243
95% MLE (t) UCL	0.00191
95% MLE (Tiku) UCL	0.00198

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.151
SD	0.633
95% H-Stat (DL/2) UCL	0.000954
Log ROS Method	
Mean in Log Scale	-6.67
SD in Log Scale	0.317
Mean in Original Scale	0.00133
SD in Original Scale	0.000423
95% Percentile Bootstrap UCL	0.0015
95% BCA Bootstrap UCL	0.00151

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	26.85
Theta Star	6.72E-05
nu star	322.2
A-D Test Statistic	0.19
5% A-D Critical Value	0.697
K-S Test Statistic	0.697
5% K-S Critical Value	0.332

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00139
Maximum	0.00239
Mean	0.00194
Median	0.00195
SD	0.000308
k star	32.85
Theta star	5.92E-05
Nu star	1117
AppChi2	1040
95% Gamma Approximate UCL	0.00209
95% Adjusted Gamma UCL	0.0021

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00154
SD	0.000241
SE of Mean	6.4E-05
95% KM (t) UCL	0.00165
95% KM (z) UCL	0.00165
95% KM (jackknife) UCL	0.0017
95% KM (bootstrap t) UCL	0.00165
95% KM (BCA) UCL	0.00187
95% KM (Percentile Bootstrap) UCL	0.00185
95% KM (Chebyshev) UCL	0.00182
97.5% KM (Chebyshev) UCL	0.00194
99% KM (Chebyshev) UCL	0.00218

Potential UCLs to Use

95% KM (t) UCL	0.00165
95% KM (Percentile Bootstrap) UCL	0.00185

Result (chromium)

General Statistics

Number of Valid Data	17	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	9
		Percent Non-Detects	52.94%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.008	Minimum Detected	-4.828
Maximum Detected	0.18	Maximum Detected	-1.715
Mean of Detected	0.114	Mean of Detected	-2.541
SD of Detected	0.0651	SD of Detected	1.165
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	7
Single DL Non-Detect Percentage	58.82%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.838	Shapiro Wilk Test Statistic	0.717
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0555	Mean	-4.164
SD	0.071	SD	1.774
95% DL/2 (t) UCL	0.0856	95% H-Stat (DL/2) UCL	0.134
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.96
		SD in Log Scale	1.683
		Mean in Original Scale	0.0572
		SD in Original Scale	0.0698
		95% Percentile Bootstrap UCL	0.0857
		95% BCA Bootstrap UCL	0.086

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.028	Data appear Normal at 5% Significance Level
Theta Star	0.111	
nu star	16.45	
A-D Test Statistic	1.064	
5% A-D Critical Value	0.728	
K-S Test Statistic	0.728	
5% K-S Critical Value	0.299	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.008	Mean	0.0577
Maximum	0.18	SD	0.0673
Mean	0.115	SE of Mean	0.0174
Median	0.121	95% KM (t) UCL	0.0882
SD	0.0466	95% KM (z) UCL	0.0864
k star	2.409	95% KM (jackknife) UCL	0.0846
Theta star	0.0476	95% KM (bootstrap t) UCL	0.0884
Nu star	81.9	95% KM (BCA) UCL	0.137
AppChi2	62.05	95% KM (Percentile Bootstrap) UCL	0.131
95% Gamma Approximate UCL	0.151	95% KM (Chebyshev) UCL	0.134
95% Adjusted Gamma UCL	0.156	97.5% KM (Chebyshev) UCL	0.167
		99% KM (Chebyshev) UCL	0.231
		Potential UCLs to Use	
		95% KM (t) UCL	0.0882
		95% KM (Percentile Bootstrap) UCL	0.131

Note: DL/2 is not a recommended method.

Result (copper)

General Statistics

Number of Valid Data	17	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	9
		Percent Non-Detects	52.94%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.078	Maximum Detected	-2.551
Mean of Detected	0.0335	Mean of Detected	-3.711
SD of Detected	0.0244	SD of Detected	0.935
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.0125	Maximum Non-Detect	-4.382

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	5
Single DL Non-Detect Percentage	70.59%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.919	Shapiro Wilk Test Statistic	0.92
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0175	Mean	-4.81
SD	0.0224	SD	1.267
95% DL/2 (t) UCL	0.027	95% H-Stat (DL/2) UCL	0.0197
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0489	Mean in Log Scale	-4.996
SD	0.0164	SD in Log Scale	1.501
95% MLE (t) UCL	0.0558	Mean in Original Scale	0.0172
95% MLE (Tiku) UCL	0.0616	SD in Original Scale	0.0227
		95% Percentile Bootstrap UCL	0.0265
		95% BCA Bootstrap UCL	0.0276

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.169	Data appear Normal at 5% Significance Level
Theta Star	0.0286	
nu star	18.71	
A-D Test Statistic	0.351	
5% A-D Critical Value	0.726	
K-S Test Statistic	0.726	
5% K-S Critical Value	0.298	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0186
Maximum	0.078	SD	0.0211
Mean	0.0325	SE of Mean	0.00547
Median	0.0288	95% KM (t) UCL	0.0281
SD	0.0216	95% KM (z) UCL	0.0276
k star	0.481	95% KM (jackknife) UCL	0.0269
Theta star	0.0677	95% KM (bootstrap t) UCL	0.0303
Nu star	16.35	95% KM (BCA) UCL	0.036
AppChi2	8.209	95% KM (Percentile Bootstrap) UCL	0.0314
95% Gamma Approximate UCL	0.0648	95% KM (Chebyshev) UCL	0.0424
95% Adjusted Gamma UCL	0.0699	97.5% KM (Chebyshev) UCL	0.0528
		99% KM (Chebyshev) UCL	0.073
		Potential UCLs to Use	
		95% KM (t) UCL	0.0281
		95% KM (Percentile Bootstrap) UCL	0.0314

Note: DL/2 is not a recommended method.

Result (fluoride)

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	14	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.21	Minimum Detected	1.166
Maximum Detected	7.02	Maximum Detected	1.949
Mean of Detected	4.158	Mean of Detected	1.391
SD of Detected	1.226	SD of Detected	0.258
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.754	Shapiro Wilk Test Statistic	0.805
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.919	Mean	1.174
SD	1.542	SD	0.93
95% DL/2 (t) UCL	4.572	95% H-Stat (DL/2) UCL	7.026
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.894	Mean in Log Scale	1.356
SD	1.566	SD in Log Scale	0.288
95% MLE (t) UCL	4.558	Mean in Original Scale	4.044
95% MLE (Tiku) UCL	4.575	SD in Original Scale	1.277
		95% Percentile Bootstrap UCL	4.544
		95% BCA Bootstrap UCL	4.624

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	12.09	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.344	
nu star	386.9	
A-D Test Statistic	1.361	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.215	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1.989	Mean	4.102
Maximum	7.02	SD	1.173
Mean	4.031	SE of Mean	0.294
Median	3.42	95% KM (t) UCL	4.615
SD	1.299	95% KM (z) UCL	4.586
k star	9.467	95% KM (jackknife) UCL	4.614
Theta star	0.426	95% KM (bootstrap t) UCL	4.881
Nu star	321.9	95% KM (BCA) UCL	4.637
AppChi2	281.3	95% KM (Percentile Bootstrap) UCL	4.575
95% Gamma Approximate UCL	4.612	95% KM (Chebyshev) UCL	5.383
95% Adjusted Gamma UCL	4.678	97.5% KM (Chebyshev) UCL	5.938
		99% KM (Chebyshev) UCL	7.027
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	5.383

Note: DL/2 is not a recommended method.

Result (iron)

General Statistics

Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.014	Minimum Detected	-4.269
Maximum Detected	2.18	Maximum Detected	0.779
Mean of Detected	0.517	Mean of Detected	-1.803
SD of Detected	0.707	SD of Detected	1.815
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.76	Shapiro Wilk Test Statistic	0.936
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.431	Mean	-2.386
SD	0.67	SD	2.133
95% DL/2 (t) UCL	0.779	95% H-Stat (DL/2) UCL	6.71
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.353	Mean in Log Scale	-2.534
SD	0.73	SD in Log Scale	2.379
95% MLE (t) UCL	0.732	Mean in Original Scale	0.431
95% MLE (Tiku) UCL	0.722	SD in Original Scale	0.67
		95% Percentile Bootstrap UCL	0.748
		95% BCA Bootstrap UCL	0.844

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.45	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.147	
nu star	9.006	
A-D Test Statistic	0.305	
5% A-D Critical Value	0.773	
K-S Test Statistic	0.773	
5% K-S Critical Value	0.28	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.433
Maximum	2.18	SD	0.641
Mean	0.431	SE of Mean	0.195
Median	0.108	95% KM (t) UCL	0.783
SD	0.671	95% KM (z) UCL	0.754
k star	0.192	95% KM (jackknife) UCL	0.779
Theta star	2.246	95% KM (bootstrap t) UCL	1.117
Nu star	4.602	95% KM (BCA) UCL	0.795
AppChi2	0.973	95% KM (Percentile Bootstrap) UCL	0.781
95% Gamma Approximate UCL	2.037	95% KM (Chebyshev) UCL	1.283
95% Adjusted Gamma UCL	2.65	97.5% KM (Chebyshev) UCL	1.65
		99% KM (Chebyshev) UCL	2.372
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	1.283

Note: DL/2 is not a recommended method.

Result (molybdenum)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		Log-transformed Statistics	
Minimum	0.158	Minimum of Log Data	-1.845
Maximum	0.352	Maximum of Log Data	-1.044
Mean	0.257	Mean of log Data	-1.383
Median	0.244	SD of log Data	0.228
SD	0.057		
Coefficient of Variation	0.222		
Skewness	0.181		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.968	Shapiro Wilk Test Statistic	0.968
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.286	95% H-UCL	0.293
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.331
95% Adjusted-CLT UCL	0.285	97.5% Chebyshev (MVUE) UCL	0.363
95% Modified-t UCL	0.286	99% Chebyshev (MVUE) UCL	0.426

Gamma Distribution Test		Data Distribution
k star (bias corrected)	16.26	**Data appear Normal at 5% Significance Level**
Theta Star	0.0158	
nu star	390.3	
Approximate Chi Square Value (.05)	345.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 0.284
Adjusted Chi Square Value	339.1	95% Jackknife UCL 0.286
		95% Standard Bootstrap UCL 0.283
Anderson-Darling Test Statistic	0.21	95% Bootstrap-t UCL 0.287
Anderson-Darling 5% Critical Value	0.732	95% Hall's Bootstrap UCL 0.286
Kolmogorov-Smirnov Test Statistic	0.141	95% Percentile Bootstrap UCL 0.282
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 0.282
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.328
		97.5% Chebyshev(Mean, Sd) UCL 0.36
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 0.42
95% Approximate Gamma UCL	0.29	
95% Adjusted Gamma UCL	0.296	

Potential UCL to Use		Use 95% Student's-t UCL	0.286

Result (nitrate)

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		Log-transformed Statistics	
Minimum	9.66	Minimum of Log Data	2.268
Maximum	82.8	Maximum of Log Data	4.416
Mean	47.6	Mean of log Data	3.541
Median	47.15	SD of log Data	0.89
SD	33.61		
Coefficient of Variation	0.706		
Skewness	-0.000686		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.737	Shapiro Wilk Test Statistic	0.779
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	63.5	95% H-UCL	97.76
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	104.4
95% Adjusted-CLT UCL	62.37	97.5% Chebyshev (MVUE) UCL	128.2
95% Modified-t UCL	63.5	99% Chebyshev (MVUE) UCL	174.9

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.383	Data do not follow a Discernable Distribution (0.05)
Theta Star	34.4	
nu star	38.74	
Approximate Chi Square Value (.05)	25.48	Nonparametric Statistics
Adjusted Level of Significance	0.0312	95% CLT UCL 62.37
Adjusted Chi Square Value	24.06	95% Jackknife UCL 63.5
		95% Standard Bootstrap UCL 61.77
Anderson-Darling Test Statistic	1.583	95% Bootstrap-t UCL 63.35
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL 60.38
Kolmogorov-Smirnov Test Statistic	0.282	95% Percentile Bootstrap UCL 61.73
Kolmogorov-Smirnov 5% Critical Value	0.232	95% BCA Bootstrap UCL 61.62
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 86.75
		97.5% Chebyshev(Mean, Sd) UCL 103.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 137
95% Approximate Gamma UCL	72.36	
95% Adjusted Gamma UCL	76.63	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 86.75

Recommended UCL exceeds the maximum observation

Result (strontium)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		Log-transformed Statistics	
Minimum	4.6	Minimum of Log Data	1.526
Maximum	16.7	Maximum of Log Data	2.815
Mean	8.518	Mean of log Data	2.044
Median	6.675	SD of log Data	0.452
SD	4.143		
Coefficient of Variation	0.486		
Skewness	1.002		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.847	Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	10.67	95% H-UCL	11.35
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13.38
95% Adjusted-CLT UCL	10.85	97.5% Chebyshev (MVUE) UCL	15.5
95% Modified-t UCL	10.72	99% Chebyshev (MVUE) UCL	19.67

Gamma Distribution Test		Data Distribution
k star (bias corrected)	3.996	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.132	
nu star	95.9	
Approximate Chi Square Value (.05)	74.31	Nonparametric Statistics
Adjusted Level of Significance	0.029	95% CLT UCL 10.48
Adjusted Chi Square Value	71.42	95% Jackknife UCL 10.67
		95% Standard Bootstrap UCL 10.41
Anderson-Darling Test Statistic	0.631	95% Bootstrap-t UCL 11.51
Anderson-Darling 5% Critical Value	0.732	95% Hall's Bootstrap UCL 11.02
Kolmogorov-Smirnov Test Statistic	0.193	95% Percentile Bootstrap UCL 10.56
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 10.71
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 13.73
		97.5% Chebyshev(Mean, Sd) UCL 15.99
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20.42
95% Approximate Gamma UCL	10.99	
95% Adjusted Gamma UCL	11.44	

Potential UCL to Use	Use 95% Approximate Gamma UCL 10.99

Result (sulfate)

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	17

Raw Statistics

Minimum	3640
Maximum	7710
Mean	5518
Median	4570
SD	1695
Coefficient of Variation	0.307
Skewness	0.325

Log-transformed Statistics

Minimum of Log Data	8.2
Maximum of Log Data	8.95
Mean of log Data	8.572
SD of log Data	0.305

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.774
Shapiro Wilk Critical Value	0.892

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	6236

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	6229
95% Modified-t UCL	6241

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.798
Shapiro Wilk Critical Value	0.892

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	6375
95% Chebyshev (MVUE) UCL	7315
97.5% Chebyshev (MVUE) UCL	8093
99% Chebyshev (MVUE) UCL	9622

Gamma Distribution Test

k star (bias corrected)	9.52
Theta Star	579.7
nu star	323.7
Approximate Chi Square Value (.05)	283
Adjusted Level of Significance	0.0346
Adjusted Chi Square Value	279
Anderson-Darling Test Statistic	1.675
Anderson-Darling 5% Critical Value	0.739
Kolmogorov-Smirnov Test Statistic	0.263
Kolmogorov-Smirnov 5% Critical Value	0.209

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	6312
95% Adjusted Gamma UCL	6402

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	6195
95% Jackknife UCL	6236
95% Standard Bootstrap UCL	6182
95% Bootstrap-t UCL	6238
95% Hall's Bootstrap UCL	6122
95% Percentile Bootstrap UCL	6136
95% BCA Bootstrap UCL	6179
95% Chebyshev(Mean, Sd) UCL	7310
97.5% Chebyshev(Mean, Sd) UCL	8086
99% Chebyshev(Mean, Sd) UCL	9609

Potential UCL to Use

Use 95% Student's-t UCL	6236
or 95% Modified-t UCL	6241

Result (trichloroethylene)

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0318	Minimum Detected	-3.448
Maximum Detected	0.0438	Maximum Detected	-3.128
Mean of Detected	0.0379	Mean of Detected	-3.278
SD of Detected	0.00447	SD of Detected	0.118
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.957
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0137
SD	0.0186
95% DL/2 (t) UCL	0.0216
Maximum Likelihood Estimate(MLE) Method	
Mean	0.0379
SD	0.00408
95% MLE (t) UCL	0.0397
95% MLE (Tiku) UCL	N/A

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.075
SD	2.131
95% H-Stat (DL/2) UCL	0.0392
Log ROS Method	
Mean in Log Scale	-3.551
SD in Log Scale	0.252
Mean in Original Scale	0.0296
SD in Original Scale	0.00749
95% Percentile Bootstrap UCL	0.0325
95% BCA Bootstrap UCL	0.0328

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	43.14
Theta Star	0.000879
nu star	517.7
A-D Test Statistic	0.247
5% A-D Critical Value	0.696
K-S Test Statistic	0.696
5% K-S Critical Value	0.332

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0311
Maximum	0.0475
Mean	0.0402
Median	0.0413
SD	0.0051
k star	52.47
Theta star	0.000767
Nu star	1784
AppChi2	1687
95% Gamma Approximate UCL	0.0425
95% Adjusted Gamma UCL	0.0428

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.034
SD	0.0038
SE of Mean	0.00101
95% KM (t) UCL	0.0357
95% KM (z) UCL	0.0356
95% KM (jackknife) UCL	0.0363
95% KM (bootstrap t) UCL	0.0359
95% KM (BCA) UCL	0.0389
95% KM (Percentile Bootstrap) UCL	0.0378
95% KM (Chebyshev) UCL	0.0384
97.5% KM (Chebyshev) UCL	0.0403
99% KM (Chebyshev) UCL	0.044

Potential UCLs to Use

95% KM (t) UCL	0.0357
95% KM (Percentile Bootstrap) UCL	0.0378

Result (vanadium (fume or dust))

General Statistics

Number of Valid Data	15	Number of Detected Data	13
Number of Distinct Detected Data	12	Number of Non-Detect Data	2
		Percent Non-Detects	13.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.013	Minimum Detected	-4.343
Maximum Detected	0.07	Maximum Detected	-2.659
Mean of Detected	0.0342	Mean of Detected	-3.492
SD of Detected	0.0176	SD of Detected	0.497
Minimum Non-Detect	0.025	Minimum Non-Detect	-3.689
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.89	Shapiro Wilk Test Statistic	0.971
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0313	Mean	-3.611
SD	0.018	SD	0.557
95% DL/2 (t) UCL	0.0395	95% H-Stat (DL/2) UCL	0.0465
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0284	Mean in Log Scale	-3.568
SD	0.0213	SD in Log Scale	0.504
95% MLE (t) UCL	0.0381	Mean in Original Scale	0.0319
95% MLE (Tiku) UCL	0.0393	SD in Original Scale	0.0174
		95% Percentile Bootstrap UCL	0.0397
		95% BCA Bootstrap UCL	0.0407

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.507	Data appear Normal at 5% Significance Level
Theta Star	0.00974	
nu star	91.18	
A-D Test Statistic	0.303	
5% A-D Critical Value	0.737	
K-S Test Statistic	0.737	
5% K-S Critical Value	0.238	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.013	Mean	0.032
Maximum	0.07	SD	0.0167
Mean	0.0323	SE of Mean	0.00451
Median	0.026	95% KM (t) UCL	0.04
SD	0.0172	95% KM (z) UCL	0.0395
k star	3.521	95% KM (jackknife) UCL	0.04
Theta star	0.00918	95% KM (bootstrap t) UCL	0.0431
Nu star	105.6	95% KM (BCA) UCL	0.0401
AppChi2	82.92	95% KM (Percentile Bootstrap) UCL	0.0399
95% Gamma Approximate UCL	0.0412	95% KM (Chebyshev) UCL	0.0517
95% Adjusted Gamma UCL	0.0424	97.5% KM (Chebyshev) UCL	0.0602
		99% KM (Chebyshev) UCL	0.0769
		Potential UCLs to Use	
		95% KM (t) UCL	0.04
		95% KM (Percentile Bootstrap) UCL	0.0399

Note: DL/2 is not a recommended method.

Attachment C – ProUCL Output for SWMU 154

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (arsenic)

General Statistics

Number of Valid Data	18	Number of Detected Data	6
Number of Distinct Detected Data	5	Number of Non-Detect Data	12
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.063	Minimum Detected	-2.765
Maximum Detected	2.1	Maximum Detected	0.742
Mean of Detected	1.024	Mean of Detected	-0.366
SD of Detected	0.681	SD of Detected	1.244
Minimum Non-Detect	0.46	Minimum Non-Detect	-0.777
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	17
Number treated as Detected	1
Single DL Non-Detect Percentage	94.44%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.781
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.555	Mean	-0.95
SD	0.532	SD	0.859
95% DL/2 (t) UCL	0.773	95% H-Stat (DL/2) UCL	1.014
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.691
		SD in Log Scale	1.298
		Mean in Original Scale	0.417
		SD in Original Scale	0.578
		95% Percentile Bootstrap UCL	0.644
		95% BCA Bootstrap UCL	0.704

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.825	Data appear Normal at 5% Significance Level
Theta Star	1.241	
nu star	9.902	
A-D Test Statistic	0.533	
5% A-D Critical Value	0.709	
K-S Test Statistic	0.709	
5% K-S Critical Value	0.338	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.063	Mean	0.399
Maximum	2.1	SD	0.581
Mean	0.964	SE of Mean	0.153
Median	0.951	95% KM (t) UCL	0.665
SD	0.386	95% KM (z) UCL	0.65
k star	3.218	95% KM (jackknife) UCL	0.73
Theta star	0.299	95% KM (bootstrap t) UCL	0.635
Nu star	115.9	95% KM (BCA) UCL	1.217
AppChi2	92	95% KM (Percentile Bootstrap) UCL	1.167
95% Gamma Approximate UCL	1.214	95% KM (Chebyshev) UCL	1.065
95% Adjusted Gamma UCL	1.241	97.5% KM (Chebyshev) UCL	1.353
		99% KM (Chebyshev) UCL	1.919
		Potential UCLs to Use	
		95% KM (t) UCL	0.665
		95% KM (Percentile Bootstrap) UCL	1.167

Note: DL/2 is not a recommended method.

Result (lead)

General Statistics

Number of Valid Data	18	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	9
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	30	Maximum Detected	3.401
Mean of Detected	16.22	Mean of Detected	2.39
SD of Detected	10.84	SD of Detected	1.139
Minimum Non-Detect	0.57	Minimum Non-Detect	-0.562
Maximum Non-Detect	25	Maximum Non-Detect	3.219

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	16
Number treated as Detected	2
Single DL Non-Detect Percentage	88.89%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.893	Shapiro Wilk Test Statistic	0.823
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	10.81	Mean	1.411
SD	10.18	SD	1.836
95% DL/2 (t) UCL	14.98	95% H-Stat (DL/2) UCL	130.8
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.457
		SD in Log Scale	1.3
		Mean in Original Scale	9.077
		SD in Original Scale	10.48
		95% Percentile Bootstrap UCL	13
		95% BCA Bootstrap UCL	13.56

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.01	Data appear Normal at 5% Significance Level	
Theta Star	16.06		
nu star	18.19		
A-D Test Statistic	0.7	**Nonparametric Statistics**	
5% A-D Critical Value	0.736	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.736	Mean	9.754
5% K-S Critical Value	0.285	SD	10.44
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	2.789
		95% KM (t) UCL	14.6
Assuming Gamma Distribution		95% KM (z) UCL	14.34
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	14.18
Minimum	1.2	95% KM (bootstrap t) UCL	14.83
Maximum	30	95% KM (BCA) UCL	16.59
Mean	14.76	95% KM (Percentile Bootstrap) UCL	16.07
Median	15.96	95% KM (Chebyshev) UCL	21.91
SD	8.629	97.5% KM (Chebyshev) UCL	27.17
k star	1.765	99% KM (Chebyshev) UCL	37.5
Theta star	8.361		
Nu star	63.53	**Potential UCLs to Use**	
AppChi2	46.19	95% KM (t) UCL	14.6
95% Gamma Approximate UCL	20.29	95% KM (Percentile Bootstrap) UCL	16.07
95% Adjusted Gamma UCL	20.94		

Note: DL/2 is not a recommended method.

Result (tph)

General Statistics

Number of Valid Data	36	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	31
		Percent Non-Detects	86.11%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	55	Minimum Detected	4.007
Maximum Detected	11000	Maximum Detected	9.306
Mean of Detected	3671	Mean of Detected	7.28
SD of Detected	4328	SD of Detected	1.996
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	40	Maximum Non-Detect	3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	31
Number treated as Detected	5
Single DL Non-Detect Percentage	86.11%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.833
5% Shapiro Wilk Critical Value	0.762

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	525.9
SD	1945
95% DL/2 (t) UCL	1074
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.899
5% Shapiro Wilk Critical Value	0.762

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	3.49
SD	1.719
95% H-Stat (DL/2) UCL	247.4
Log ROS Method	
Mean in Log Scale	-1.185
SD in Log Scale	5.115
Mean in Original Scale	513.7
SD in Original Scale	1948
95% Percentile Bootstrap UCL	1091
95% BCA Bootstrap UCL	1515

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.396
Theta Star	9266
nu star	3.962
A-D Test Statistic	0.213
5% A-D Critical Value	0.703
K-S Test Statistic	0.703
5% K-S Critical Value	0.369

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	11000
Mean	2754
Median	2770
SD	2538
k star	0.12
Theta star	22877
Nu star	8.667
AppChi2	3.127
95% Gamma Approximate UCL	7632
95% Adjusted Gamma UCL	8016

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	557.2
SD	1909
SE of Mean	355.8
95% KM (t) UCL	1158
95% KM (z) UCL	1142
95% KM (jackknife) UCL	1400
95% KM (bootstrap t) UCL	1570
95% KM (BCA) UCL	4097
95% KM (Percentile Bootstrap) UCL	2594
95% KM (Chebyshev) UCL	2108
97.5% KM (Chebyshev) UCL	2779
99% KM (Chebyshev) UCL	4097

Potential UCLs to Use

95% KM (t) UCL	1158
95% KM (Percentile Bootstrap) UCL	2594

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (>c10-c28)

General Statistics

Number of Valid Data	59	Number of Detected Data	29
Number of Distinct Detected Data	25	Number of Non-Detect Data	30
		Percent Non-Detects	50.85%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	21	Minimum Detected	3.045
Maximum Detected	18000	Maximum Detected	9.798
Mean of Detected	4714	Mean of Detected	7.572
SD of Detected	4610	SD of Detected	1.821
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	71	Maximum Non-Detect	4.263

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	33
Number treated as Detected	26
Single DL Non-Detect Percentage	55.93%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.87	Lilliefors Test Statistic	0.875
5% Lilliefors Critical Value	0.926	5% Lilliefors Critical Value	0.926
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2321	Mean	4.684
SD	3986	SD	3.157
95% DL/2 (t) UCL	3189	95% H-Stat (DL/2) UCL	27280
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	5.399
		SD in Log Scale	2.662
		Mean in Original Scale	2342
		SD in Original Scale	3974
		95% Percentile Bootstrap UCL	3240
		95% BCA Bootstrap UCL	3337

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.636	Data appear Gamma Distributed at 5% Significance Level
Theta Star	7408	
nu star	36.91	
A-D Test Statistic	0.467	
5% A-D Critical Value	0.791	
K-S Test Statistic	0.791	
5% K-S Critical Value	0.17	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	21	Mean	2328
Maximum	18000	SD	3948
Mean	4644	SE of Mean	523.1
Median	4100	95% KM (t) UCL	3202
SD	3414	95% KM (z) UCL	3188
k star	1.155	95% KM (jackknife) UCL	3186
Theta star	4022	95% KM (bootstrap t) UCL	3447
Nu star	136.2	95% KM (BCA) UCL	3276
AppChi2	110.3	95% KM (Percentile Bootstrap) UCL	3213
95% Gamma Approximate UCL	5738	95% KM (Chebyshev) UCL	4608
95% Adjusted Gamma UCL	5768	97.5% KM (Chebyshev) UCL	5595
		99% KM (Chebyshev) UCL	7533
		Potential UCLs to Use	
		95% KM (t) UCL	3202

Note: DL/2 is not a recommended method.

Result (1,1,1-trichloroethane)

General Statistics

Number of Valid Data	171	Number of Detected Data	25
Number of Distinct Detected Data	24	Number of Non-Detect Data	146
		Percent Non-Detects	85.38%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00073	Minimum Detected	-7.222
Maximum Detected	1.3	Maximum Detected	0.262
Mean of Detected	0.195	Mean of Detected	-3.008
SD of Detected	0.309	SD of Detected	1.953
Minimum Non-Detect	0.00036	Minimum Non-Detect	-7.929
Maximum Non-Detect	0.625	Maximum Non-Detect	-0.47

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	169
Number treated as Detected	2
Single DL Non-Detect Percentage	98.83%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.671	Lilliefors Test Statistic	0.968
5% Lilliefors Critical Value	0.918	5% Lilliefors Critical Value	0.918
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0395	Mean	-5.129
SD	0.136	SD	1.847
95% DL/2 (t) UCL	0.0567	95% H-Stat (DL/2) UCL	0.0359
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-8.922
		SD in Log Scale	3.528
		Mean in Original Scale	0.0289
		SD in Original Scale	0.135
		95% Percentile Bootstrap UCL	0.047
		95% BCA Bootstrap UCL	0.0532

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.438	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.445	
nu star	21.91	
A-D Test Statistic	0.545	
5% A-D Critical Value	0.814	
K-S Test Statistic	0.814	
5% K-S Critical Value	0.185	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.00073	Mean	0.0297
Maximum	1.3	SD	0.135
Mean	0.199	SE of Mean	0.0105
Median	0.185	95% KM (t) UCL	0.0471
SD	0.121	95% KM (z) UCL	0.047
k star	2.451	95% KM (jackknife) UCL	0.0459
Theta star	0.0814	95% KM (bootstrap t) UCL	0.0574
Nu star	838.3	95% KM (BCA) UCL	0.0562
AppChi2	772.1	95% KM (Percentile Bootstrap) UCL	0.0494
95% Gamma Approximate UCL	0.217	95% KM (Chebyshev) UCL	0.0755
95% Adjusted Gamma UCL	0.217	97.5% KM (Chebyshev) UCL	0.0954
		99% KM (Chebyshev) UCL	0.134
		Potential UCLs to Use	
		95% KM (t) UCL	0.0471

Note: DL/2 is not a recommended method.

Result (1,1-dichloroethane)

General Statistics

Number of Valid Data	171	Number of Detected Data	12
Number of Distinct Detected Data	11	Number of Non-Detect Data	159
		Percent Non-Detects	92.98%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0069	Minimum Detected	-4.976
Maximum Detected	0.095	Maximum Detected	-2.354
Mean of Detected	0.0376	Mean of Detected	-3.614
SD of Detected	0.0286	SD of Detected	0.92
Minimum Non-Detect	0.00087	Minimum Non-Detect	-7.047
Maximum Non-Detect	1.25	Maximum Non-Detect	0.223

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	171
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.91
5% Lilliefors Critical Value	0.859

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.92
5% Lilliefors Critical Value	0.859

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0175
SD	0.0512
95% DL/2 (t) UCL	0.024
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.195
SD	1.479
95% H-Stat (DL/2) UCL	0.0187
Log ROS Method	
Mean in Log Scale	-7.325
SD in Log Scale	1.736
Mean in Original Scale	0.00377
SD in Original Scale	0.012
95% Percentile Bootstrap UCL	0.0053
95% BCA Bootstrap UCL	0.0058

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.286
Theta Star	0.0293
nu star	30.86
A-D Test Statistic	0.354
5% A-D Critical Value	0.744
K-S Test Statistic	0.744
5% K-S Critical Value	0.249

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.117
Mean	0.0558
Median	0.0569
SD	0.0317
k star	0.659
Theta star	0.0847
Nu star	225.5
AppChi2	191.7
95% Gamma Approximate UCL	0.0657
95% Adjusted Gamma UCL	0.0657

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00937
SD	0.0111
SE of Mean	0.000934
95% KM (t) UCL	0.0109
95% KM (z) UCL	0.0109
95% KM (jackknife) UCL	0.0107
95% KM (bootstrap t) UCL	0.0114
95% KM (BCA) UCL	0.0194
95% KM (Percentile Bootstrap) UCL	0.013
95% KM (Chebyshev) UCL	0.0134
97.5% KM (Chebyshev) UCL	0.0152
99% KM (Chebyshev) UCL	0.0187

Potential UCLs to Use

95% KM (t) UCL	0.0109
95% KM (Percentile Bootstrap) UCL	0.013

Result (1,2,4-trimethylbenzene)

General Statistics

Number of Valid Data	58	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	47
		Percent Non-Detects	81.03%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.068	Minimum Detected	-2.688
Maximum Detected	32	Maximum Detected	3.466
Mean of Detected	6.179	Mean of Detected	0.449
SD of Detected	9.533	SD of Detected	2.063
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	50
Number treated as Detected	8
Single DL Non-Detect Percentage	86.21%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.69	Lilliefors Test Statistic	0.945
5% Lilliefors Critical Value	0.85	5% Lilliefors Critical Value	0.85
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.187	Mean	-3.61
SD	4.677	SD	2.361
95% DL/2 (t) UCL	2.214	95% H-Stat (DL/2) UCL	0.611
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.43
		SD in Log Scale	4.446
		Mean in Original Scale	1.176
		SD in Original Scale	4.68
		95% Percentile Bootstrap UCL	2.264
		95% BCA Bootstrap UCL	2.966

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.401	Data appear Gamma Distributed at 5% Significance Level
Theta Star	15.42	
nu star	8.816	
A-D Test Statistic	0.254	
5% A-D Critical Value	0.787	
K-S Test Statistic	0.787	
5% K-S Critical Value	0.27	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	1.227
Maximum	32	SD	4.627
Mean	5.182	SE of Mean	0.637
Median	5.548	95% KM (t) UCL	2.293
SD	5.303	95% KM (z) UCL	2.275
k star	0.162	95% KM (jackknife) UCL	2.219
Theta star	32.08	95% KM (bootstrap t) UCL	3.957
Nu star	18.73	95% KM (BCA) UCL	2.642
AppChi2	9.924	95% KM (Percentile Bootstrap) UCL	2.418
95% Gamma Approximate UCL	9.782	95% KM (Chebyshev) UCL	4.005
95% Adjusted Gamma UCL	9.946	97.5% KM (Chebyshev) UCL	5.206
		99% KM (Chebyshev) UCL	7.567
		Potential UCLs to Use	
		95% KM (t) UCL	2.293

Note: DL/2 is not a recommended method.

Result (1,3,5-trimethylbenzene)

General Statistics

Number of Valid Data	60	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	52
		Percent Non-Detects	86.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0293	Minimum Detected	-3.53
Maximum Detected	11	Maximum Detected	2.398
Mean of Detected	3.022	Mean of Detected	0.0306
SD of Detected	4.055	SD of Detected	1.878
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	11	Maximum Non-Detect	2.398

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	59
Number treated as Detected	1
Single DL Non-Detect Percentage	98.33%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.749	Lilliefors Test Statistic	0.941
5% Lilliefors Critical Value	0.818	5% Lilliefors Critical Value	0.818
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.527	Mean	-3.724
SD	1.854	SD	2.12
95% DL/2 (t) UCL	0.927	95% H-Stat (DL/2) UCL	0.361
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-6.225
		SD in Log Scale	3.525
		Mean in Original Scale	0.409
		SD in Original Scale	1.738
		95% Percentile Bootstrap UCL	0.795
		95% BCA Bootstrap UCL	0.967

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.444	Data appear Gamma Distributed at 5% Significance Level
Theta Star	6.798	
nu star	7.112	
A-D Test Statistic	0.3	
5% A-D Critical Value	0.757	
K-S Test Statistic	0.757	
5% K-S Critical Value	0.307	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0293	Mean	0.433
Maximum	11	SD	1.723
Mean	3.384	SE of Mean	0.239
Median	2.837	95% KM (t) UCL	0.832
SD	2.22	95% KM (z) UCL	0.825
k star	1.97	95% KM (jackknife) UCL	0.754
Theta star	1.718	95% KM (bootstrap t) UCL	1.72
Nu star	236.4	95% KM (BCA) UCL	1.459
AppChi2	201.8	95% KM (Percentile Bootstrap) UCL	1.19
95% Gamma Approximate UCL	3.964	95% KM (Chebyshev) UCL	1.473
95% Adjusted Gamma UCL	3.98	97.5% KM (Chebyshev) UCL	1.923
		99% KM (Chebyshev) UCL	2.807
		Potential UCLs to Use	
		95% KM (t) UCL	0.832

Note: DL/2 is not a recommended method.

Result (1-methylnaphthalene)

General Statistics

Number of Valid Data	24	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	17
		Percent Non-Detects	70.83%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.302	Minimum Detected	-1.197
Maximum Detected	55.8	Maximum Detected	4.022
Mean of Detected	15.7	Mean of Detected	2.048
SD of Detected	18.48	SD of Detected	1.607
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.25	Maximum Non-Detect	-1.386

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.733	Shapiro Wilk Test Statistic	0.861
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.668	Mean	-0.875
SD	11.89	SD	2.085
95% DL/2 (t) UCL	8.827	95% H-Stat (DL/2) UCL	6.225
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.727
		SD in Log Scale	3.159
		Mean in Original Scale	4.687
		SD in Original Scale	11.88
		95% Percentile Bootstrap UCL	9.085
		95% BCA Bootstrap UCL	11.67

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.573	Data appear Gamma Distributed at 5% Significance Level
Theta Star	27.38	
nu star	8.027	
A-D Test Statistic	0.354	
5% A-D Critical Value	0.733	
K-S Test Statistic	0.733	
5% K-S Critical Value	0.322	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	4.793
Maximum	208.9	SD	11.59
Mean	61.22	SE of Mean	2.556
Median	35.78	95% KM (t) UCL	9.173
SD	65.1	95% KM (z) UCL	8.997
k star	0.351	95% KM (jackknife) UCL	8.944
Theta star	174.3	95% KM (bootstrap t) UCL	13.63
Nu star	16.85	95% KM (BCA) UCL	14.68
AppChi2	8.568	95% KM (Percentile Bootstrap) UCL	13.2
95% Gamma Approximate UCL	120.4	95% KM (Chebyshev) UCL	15.93
95% Adjusted Gamma UCL	126.5	97.5% KM (Chebyshev) UCL	20.75
		99% KM (Chebyshev) UCL	30.22
		Potential UCLs to Use	
		95% KM (t) UCL	9.173

Note: DL/2 is not a recommended method.

Result (2-butanone)

General Statistics

Number of Valid Data	170	Number of Detected Data	23
Number of Distinct Detected Data	17	Number of Non-Detect Data	147
		Percent Non-Detects	86.47%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0095	Minimum Detected	-4.656
Maximum Detected	2.2	Maximum Detected	0.788
Mean of Detected	0.435	Mean of Detected	-1.342
SD of Detected	0.455	SD of Detected	1.224
Minimum Non-Detect	0.0018	Minimum Non-Detect	-6.32
Maximum Non-Detect	1	Maximum Non-Detect	0

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	169
Number treated as Detected	1
Single DL Non-Detect Percentage	99.41%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.715
5% Lilliefors Critical Value	0.914

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.902
5% Lilliefors Critical Value	0.914

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.161
SD	0.25
95% DL/2 (t) UCL	0.193
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-2.802
SD	1.549
95% H-Stat (DL/2) UCL	0.266
Log ROS Method	
Mean in Log Scale	-4.734
SD in Log Scale	2.04
Mean in Original Scale	0.0726
SD in Original Scale	0.221
95% Percentile Bootstrap UCL	0.103
95% BCA Bootstrap UCL	0.114

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1
Theta Star	0.435
nu star	46
A-D Test Statistic	0.343
5% A-D Critical Value	0.767
K-S Test Statistic	0.767
5% K-S Critical Value	0.186

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0095
Maximum	2.2
Mean	0.458
Median	0.449
SD	0.244
k star	3.232
Theta star	0.142
Nu star	1099
AppChi2	1023
95% Gamma Approximate UCL	0.492
95% Adjusted Gamma UCL	0.493

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.0759
SD	0.225
SE of Mean	0.0184
95% KM (t) UCL	0.106
95% KM (z) UCL	0.106
95% KM (jackknife) UCL	0.102
95% KM (bootstrap t) UCL	0.116
95% KM (BCA) UCL	0.17
95% KM (Percentile Bootstrap) UCL	0.147
95% KM (Chebyshev) UCL	0.156
97.5% KM (Chebyshev) UCL	0.191
99% KM (Chebyshev) UCL	0.259

Potential UCLs to Use

95% KM (t) UCL	0.106

Result (2-methylnaphthalene)

General Statistics

Number of Valid Data	40	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	25
		Percent Non-Detects	62.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.698	Minimum Detected	-0.36
Maximum Detected	71.3	Maximum Detected	4.267
Mean of Detected	21.42	Mean of Detected	2.39
SD of Detected	21.05	SD of Detected	1.447
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	25
Number treated as Detected	15
Single DL Non-Detect Percentage	62.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.854	Shapiro Wilk Test Statistic	0.892
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	8.126	Mean	-0.31
SD	16.37	SD	2.297
95% DL/2 (t) UCL	12.49	95% H-Stat (DL/2) UCL	12.7
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.221
		SD in Log Scale	2.511
		Mean in Original Scale	8.258
		SD in Original Scale	16.3
		95% Percentile Bootstrap UCL	12.73
		95% BCA Bootstrap UCL	13.44

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.741	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	28.91		
nu star	22.23		
A-D Test Statistic	0.397		
5% A-D Critical Value	0.769		
K-S Test Statistic	0.769		
5% K-S Critical Value	0.229		
Data appear Gamma Distributed at 5% Significance Level			

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	8.468
Maximum	72.97	SD	15.99
Mean	26.24	SE of Mean	2.617
Median	18.72	95% KM (t) UCL	12.88
SD	22.49	95% KM (z) UCL	12.77
k star	0.301	95% KM (jackknife) UCL	12.64
Theta star	87.13	95% KM (bootstrap t) UCL	14.37
Nu star	24.09	95% KM (BCA) UCL	14.7
AppChi2	13.92	95% KM (Percentile Bootstrap) UCL	13.72
95% Gamma Approximate UCL	45.41	95% KM (Chebyshev) UCL	19.88
95% Adjusted Gamma UCL	46.38	97.5% KM (Chebyshev) UCL	24.81
		99% KM (Chebyshev) UCL	34.51
		Potential UCLs to Use	
		95% KM (t) UCL	12.88

Note: DL/2 is not a recommended method.

Result (acenaphthene)

General Statistics

Number of Valid Data	65	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	56
		Percent Non-Detects	86.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.08	Minimum Detected	-2.526
Maximum Detected	3.1	Maximum Detected	1.131
Mean of Detected	1.426	Mean of Detected	-0.0465
SD of Detected	1.044	SD of Detected	1.151
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.949
5% Lilliefors Critical Value	0.829

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.889
5% Lilliefors Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.381
SD	0.623
95% DL/2 (t) UCL	0.51
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-1.556
SD	0.879
95% H-Stat (DL/2) UCL	0.331
Log ROS Method	
Mean in Log Scale	-2.318
SD in Log Scale	1.462
Mean in Original Scale	0.298
SD in Original Scale	0.596
95% Percentile Bootstrap UCL	0.426
95% BCA Bootstrap UCL	0.457

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1
Theta Star	1.427
nu star	17.99
A-D Test Statistic	0.24
5% A-D Critical Value	0.736
K-S Test Statistic	0.736
5% K-S Critical Value	0.285

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.08
Maximum	3.152
Mean	1.96
Median	1.979
SD	0.734
k star	4.529
Theta star	0.433
Nu star	588.8
AppChi2	533.5
95% Gamma Approximate UCL	2.163
95% Adjusted Gamma UCL	2.168

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.272
SD	0.598
SE of Mean	0.0796
95% KM (t) UCL	0.405
95% KM (z) UCL	0.403
95% KM (jackknife) UCL	0.477
95% KM (bootstrap t) UCL	0.427
95% KM (BCA) UCL	1.05
95% KM (Percentile Bootstrap) UCL	0.855
95% KM (Chebyshev) UCL	0.619
97.5% KM (Chebyshev) UCL	0.769
99% KM (Chebyshev) UCL	1.064

Potential UCLs to Use

95% KM (t) UCL	0.405
95% KM (Percentile Bootstrap) UCL	0.855

Result (acetone)

General Statistics

Number of Valid Data	170	Number of Detected Data	23
Number of Distinct Detected Data	21	Number of Non-Detect Data	147
		Percent Non-Detects	86.47%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	15	Maximum Detected	2.708
Mean of Detected	1.785	Mean of Detected	-2.008
SD of Detected	4.226	SD of Detected	2.347
Minimum Non-Detect	0.0039	Minimum Non-Detect	-5.547
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	166
Number treated as Detected	4
Single DL Non-Detect Percentage	97.65%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.476	Lilliefors Test Statistic	0.873
5% Lilliefors Critical Value	0.914	5% Lilliefors Critical Value	0.914
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.325	Mean	-2.947
SD	1.64	SD	1.543
95% DL/2 (t) UCL	0.533	95% H-Stat (DL/2) UCL	0.218
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.243
		SD in Log Scale	2.933
		Mean in Original Scale	0.25
		SD in Original Scale	1.642
		95% Percentile Bootstrap UCL	0.483
		95% BCA Bootstrap UCL	0.579

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.265	Data do not follow a Discernable Distribution (0.05)
Theta Star	6.744	
nu star	12.17	
A-D Test Statistic	2.248	
5% A-D Critical Value	0.862	
K-S Test Statistic	0.862	
5% K-S Critical Value	0.198	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.01	Mean	0.256
Maximum	15	SD	1.636
Mean	2.825	SE of Mean	0.128
Median	1.822	95% KM (t) UCL	0.469
SD	2.552	95% KM (z) UCL	0.467
k star	1.067	95% KM (jackknife) UCL	0.463
Theta star	2.646	95% KM (bootstrap t) UCL	0.903
Nu star	362.9	95% KM (BCA) UCL	0.522
AppChi2	319.8	95% KM (Percentile Bootstrap) UCL	0.475
95% Gamma Approximate UCL	3.206	95% KM (Chebyshev) UCL	0.816
95% Adjusted Gamma UCL	3.209	97.5% KM (Chebyshev) UCL	1.058
		99% KM (Chebyshev) UCL	1.533
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	1.058

Note: DL/2 is not a recommended method.

Result (aluminum)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	30

Raw Statistics		Log-transformed Statistics	
Minimum	2200	Minimum of Log Data	7.696
Maximum	27000	Maximum of Log Data	10.2
Mean	9661	Mean of log Data	8.936
Median	8300	SD of log Data	0.726
SD	6521		
Coefficient of Variation	0.675		
Skewness	0.881		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.893	Shapiro Wilk Test Statistic	0.94
Shapiro Wilk Critical Value	0.946	Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	11258	95% H-UCL	12321
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14806
95% Adjusted-CLT UCL	11356	97.5% Chebyshev (MVUE) UCL	16962
95% Modified-t UCL	11278	99% Chebyshev (MVUE) UCL	21198

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.107	Data appear Gamma Distributed at 5% Significance Level
Theta Star	4585	
nu star	198.1	
Approximate Chi Square Value (.05)	166.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0449	95% CLT UCL 11226
Adjusted Chi Square Value	165.6	95% Jackknife UCL 11258
		95% Standard Bootstrap UCL 11220
Anderson-Darling Test Statistic	0.643	95% Bootstrap-t UCL 11482
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL 11370
Kolmogorov-Smirnov Test Statistic	0.106	95% Percentile Bootstrap UCL 11221
Kolmogorov-Smirnov 5% Critical Value	0.131	95% BCA Bootstrap UCL 11395
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 13807
		97.5% Chebyshev(Mean, Sd) UCL 15601
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 19125
95% Approximate Gamma UCL	11493	
95% Adjusted Gamma UCL	11556	

Potential UCL to Use	Use 95% Approximate Gamma UCL 11493

Result (anthracene)

General Statistics

Number of Valid Data	65	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	56
		Percent Non-Detects	86.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.46	Minimum Detected	-0.777
Maximum Detected	10.6	Maximum Detected	2.361
Mean of Detected	3.222	Mean of Detected	0.76
SD of Detected	3.255	SD of Detected	0.968
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	63
Number treated as Detected	2
Single DL Non-Detect Percentage	96.92%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.797	Lilliefors Test Statistic	0.993
5% Lilliefors Critical Value	0.829	5% Lilliefors Critical Value	0.829
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.632	Mean	-1.43
SD	1.579	SD	1.065
95% DL/2 (t) UCL	0.959	95% H-Stat (DL/2) UCL	0.441
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.871
		SD in Log Scale	2.13
		Mean in Original Scale	0.519
		SD in Original Scale	1.59
		95% Percentile Bootstrap UCL	0.859
		95% BCA Bootstrap UCL	1.006

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.982	Data appear Gamma Distributed at 5% Significance Level
Theta Star	3.28	
nu star	17.68	
A-D Test Statistic	0.246	
5% A-D Critical Value	0.737	
K-S Test Statistic	0.737	
5% K-S Critical Value	0.285	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	17.21
Mean	7.375
Median	6.796
SD	5.269
k star	0.454
Theta star	16.24
Nu star	59.03
AppChi2	42.37
95% Gamma Approximate UCL	10.28
95% Adjusted Gamma UCL	10.35

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.846
SD	1.489
SE of Mean	0.196
95% KM (t) UCL	1.173
95% KM (z) UCL	1.169
95% KM (jackknife) UCL	1.168
95% KM (bootstrap t) UCL	1.51
95% KM (BCA) UCL	2.101
95% KM (Percentile Bootstrap) UCL	1.761
95% KM (Chebyshev) UCL	1.701
97.5% KM (Chebyshev) UCL	2.071
99% KM (Chebyshev) UCL	2.797
Potential UCLs to Use	
95% KM (t) UCL	1.173

Result (antimony)

General Statistics

Number of Valid Data	73	Number of Detected Data	9
Number of Distinct Detected Data	8	Number of Non-Detect Data	64
		Percent Non-Detects	87.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.53	Minimum Detected	-0.635
Maximum Detected	24	Maximum Detected	3.178
Mean of Detected	7.017	Mean of Detected	0.726
SD of Detected	9.829	SD of Detected	1.686
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	24	Maximum Non-Detect	3.178

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	72
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	98.63%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.691	Lilliefors Test Statistic	0.721
5% Lilliefors Critical Value	0.829	5% Lilliefors Critical Value	0.829
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.847	Mean	0.881
SD	4.424	SD	1.475
95% DL/2 (t) UCL	5.709	95% H-Stat (DL/2) UCL	11.12
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.842
		SD in Log Scale	2.407
		Mean in Original Scale	1.04
		SD in Original Scale	4.003
		95% Percentile Bootstrap UCL	1.889
		95% BCA Bootstrap UCL	2.216

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.419	Data do not follow a Discernable Distribution (0.05)
Theta Star	16.76	
nu star	7.536	
A-D Test Statistic	1.356	
5% A-D Critical Value	0.769	
K-S Test Statistic	0.769	
5% K-S Critical Value	0.294	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	1.375
Maximum	293.4	SD	3.928
Mean	65.74	SE of Mean	0.494
Median	35.97	95% KM (t) UCL	2.198
SD	77.02	95% KM (z) UCL	2.187
k star	0.212	95% KM (jackknife) UCL	2.13
Theta star	310.3	95% KM (bootstrap t) UCL	2.861
Nu star	30.93	95% KM (BCA) UCL	2.253
AppChi2	19.22	95% KM (Percentile Bootstrap) UCL	2.212
95% Gamma Approximate UCL	105.8	95% KM (Chebyshev) UCL	3.527
95% Adjusted Gamma UCL	106.8	97.5% KM (Chebyshev) UCL	4.457
		99% KM (Chebyshev) UCL	6.286
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	3.527

Note: DL/2 is not a recommended method.

Result (arsenic)

General Statistics

Number of Valid Data	138	Number of Detected Data	87
Number of Distinct Detected Data	53	Number of Non-Detect Data	51
		Percent Non-Detects	36.96%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.063	Minimum Detected	-2.765
Maximum Detected	35	Maximum Detected	3.555
Mean of Detected	3.353	Mean of Detected	0.769
SD of Detected	4.561	SD of Detected	0.911
Minimum Non-Detect	0.43	Minimum Non-Detect	-0.844
Maximum Non-Detect	64	Maximum Non-Detect	4.159

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	138
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.254
5% Lilliefors Critical Value	0.095

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.069
5% Lilliefors Critical Value	0.095

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	5.12
SD	7.197
95% DL/2 (t) UCL	6.134
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	0.753
SD	1.384
95% H-Stat (DL/2) UCL	8.392
Log ROS Method	
Mean in Log Scale	0.356
SD in Log Scale	1.075
Mean in Original Scale	2.555
SD in Original Scale	3.878
95% Percentile Bootstrap UCL	3.146
95% BCA Bootstrap UCL	3.328

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.238
Theta Star	2.708
nu star	215.4
A-D Test Statistic	2.399
5% A-D Critical Value	0.776
K-S Test Statistic	0.776
5% K-S Critical Value	0.0981

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	35
Mean	3.095
Median	1.9
SD	4.051
k star	0.273
Theta star	11.34
Nu star	75.37
AppChi2	56.38
95% Gamma Approximate UCL	4.138
95% Adjusted Gamma UCL	4.151

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	2.562
SD	3.99
SE of Mean	0.36
95% KM (t) UCL	3.158
95% KM (z) UCL	3.154
95% KM (jackknife) UCL	3.1
95% KM (bootstrap t) UCL	3.381
95% KM (BCA) UCL	3.313
95% KM (Percentile Bootstrap) UCL	3.189
95% KM (Chebyshev) UCL	4.131
97.5% KM (Chebyshev) UCL	4.81
99% KM (Chebyshev) UCL	6.144

Potential UCLs to Use

95% KM (BCA) UCL	3.313

Result (barium)

General Statistics

Number of Valid Data	126	Number of Detected Data	76
Number of Distinct Detected Data	46	Number of Non-Detect Data	50
		Percent Non-Detects	39.68%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3	Minimum Detected	1.099
Maximum Detected	1000	Maximum Detected	6.908
Mean of Detected	87.89	Mean of Detected	4.152
SD of Detected	118.1	SD of Detected	0.766
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	110	Maximum Non-Detect	4.7

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	108
Number treated as Detected	18
Single DL Non-Detect Percentage	85.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.265	Lilliefors Test Statistic	0.126
5% Lilliefors Critical Value	0.102	5% Lilliefors Critical Value	0.102
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	66.89	Mean	3.74
SD	95.76	SD	1.265
95% DL/2 (t) UCL	81.03	95% H-Stat (DL/2) UCL	117.6
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.781
		SD in Log Scale	0.836
		Mean in Original Scale	64.69
		SD in Original Scale	96.44
		95% Percentile Bootstrap UCL	80.93
		95% BCA Bootstrap UCL	86.31

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.634	Data do not follow a Discernable Distribution (0.05)
Theta Star	53.78	
nu star	248.4	
A-D Test Statistic	2.804	
5% A-D Critical Value	0.767	
K-S Test Statistic	0.767	
5% K-S Critical Value	0.104	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	64.36
Maximum	1000	SD	96.85
Mean	78.79	SE of Mean	8.798
Median	61	95% KM (t) UCL	78.94
SD	97	95% KM (z) UCL	78.83
k star	0.442	95% KM (jackknife) UCL	78.47
Theta star	178.2	95% KM (bootstrap t) UCL	89.88
Nu star	111.4	95% KM (BCA) UCL	83.74
AppChi2	88.05	95% KM (Percentile Bootstrap) UCL	81.58
95% Gamma Approximate UCL	99.7	95% KM (Chebyshev) UCL	102.7
95% Adjusted Gamma UCL	99.97	97.5% KM (Chebyshev) UCL	119.3
		99% KM (Chebyshev) UCL	151.9
		Potential UCLs to Use	
		95% KM (BCA) UCL	83.74

Note: DL/2 is not a recommended method.

Result (benzene)

General Statistics

Number of Valid Data	170	Number of Detected Data	31
Number of Distinct Detected Data	26	Number of Non-Detect Data	139
		Percent Non-Detects	81.76%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0051	Minimum Detected	-5.279
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.146	Mean of Detected	-3.106
SD of Detected	0.276	SD of Detected	1.584
Minimum Non-Detect	0.0015	Minimum Non-Detect	-6.502
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	164
Number treated as Detected	6
Single DL Non-Detect Percentage	96.47%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.543	Lilliefors Test Statistic	0.935
5% Lilliefors Critical Value	0.929	5% Lilliefors Critical Value	0.929
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0384	Mean	-4.743
SD	0.129	SD	1.546
95% DL/2 (t) UCL	0.0547	95% H-Stat (DL/2) UCL	0.0315
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.418
		SD in Log Scale	2.812
		Mean in Original Scale	0.0275
		SD in Original Scale	0.129
		95% Percentile Bootstrap UCL	0.0454
		95% BCA Bootstrap UCL	0.0535

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.502	Data appear Lognormal at 5% Significance Level
Theta Star	0.291	
nu star	31.13	
A-D Test Statistic	1.22	
5% A-D Critical Value	0.807	
K-S Test Statistic	0.807	
5% K-S Critical Value	0.166	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0315
Maximum	1.4	SD	0.128
Mean	0.123	SE of Mean	0.01
Median	0.127	95% KM (t) UCL	0.048
SD	0.124	95% KM (z) UCL	0.048
k star	1.096	95% KM (jackknife) UCL	0.0472
Theta star	0.112	95% KM (bootstrap t) UCL	0.0649
Nu star	372.5	95% KM (BCA) UCL	0.0498
AppChi2	328.7	95% KM (Percentile Bootstrap) UCL	0.0485
95% Gamma Approximate UCL	0.14	95% KM (Chebyshev) UCL	0.0751
95% Adjusted Gamma UCL	0.14	97.5% KM (Chebyshev) UCL	0.094
		99% KM (Chebyshev) UCL	0.131
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	0.0751

Note: DL/2 is not a recommended method.

Result (cadmium)

General Statistics

Number of Valid Data	138	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	132
		Percent Non-Detects	95.65%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.25	Minimum Detected	-1.386
Maximum Detected	2	Maximum Detected	0.693
Mean of Detected	0.857	Mean of Detected	-0.374
SD of Detected	0.642	SD of Detected	0.724
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	2.7	Maximum Non-Detect	0.993

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	138
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.853
5% Lilliefors Critical Value	0.788

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.962
5% Lilliefors Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.74
SD	0.43
95% DL/2 (t) UCL	0.8
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-0.491
SD	0.638
95% H-Stat (DL/2) UCL	0.859
Log ROS Method	
Mean in Log Scale	-1.441
SD in Log Scale	0.599
Mean in Original Scale	0.288
SD in Original Scale	0.228
95% Percentile Bootstrap UCL	0.322
95% BCA Bootstrap UCL	0.328

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.329
Theta Star	0.645
nu star	15.95
A-D Test Statistic	0.327
5% A-D Critical Value	0.703
K-S Test Statistic	0.703
5% K-S Critical Value	0.335

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2
Mean	0.939
Median	0.943
SD	0.499
k star	0.674
Theta star	1.394
Nu star	185.9
AppChi2	155.4
95% Gamma Approximate UCL	1.124
95% Adjusted Gamma UCL	1.126

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.317
SD	0.228
SE of Mean	0.0329
95% KM (t) UCL	0.372
95% KM (z) UCL	0.371
95% KM (jackknife) UCL	0.463
95% KM (bootstrap t) UCL	0.372
95% KM (BCA) UCL	0.638
95% KM (Percentile Bootstrap) UCL	0.625
95% KM (Chebyshev) UCL	0.461
97.5% KM (Chebyshev) UCL	0.523
99% KM (Chebyshev) UCL	0.645

Potential UCLs to Use

95% KM (t) UCL	0.372
95% KM (Percentile Bootstrap) UCL	0.625

Result (calcium metal)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	33

Raw Statistics		Log-transformed Statistics	
Minimum	849	Minimum of Log Data	6.744
Maximum	200000	Maximum of Log Data	12.21
Mean	65580	Mean of log Data	10.07
Median	39000	SD of log Data	1.829
SD	68604		
Coefficient of Variation	1.046		
Skewness	0.847		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.816	Shapiro Wilk Test Statistic	0.864
Shapiro Wilk Critical Value	0.946	Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	82378	95% H-UCL	308241
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	302994
95% Adjusted-CLT UCL	83360	97.5% Chebyshev (MVUE) UCL	384384
95% Modified-t UCL	82584	99% Chebyshev (MVUE) UCL	544260

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.579	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	113331	
nu star	54.39	
Approximate Chi Square Value (.05)	38.45	Nonparametric Statistics
Adjusted Level of Significance	0.0449	95% CLT UCL 82040
Adjusted Chi Square Value	38.02	95% Jackknife UCL 82378
		95% Standard Bootstrap UCL 82205
Anderson-Darling Test Statistic	1.122	95% Bootstrap-t UCL 83488
Anderson-Darling 5% Critical Value	0.804	95% Hall's Bootstrap UCL 83036
Kolmogorov-Smirnov Test Statistic	0.133	95% Percentile Bootstrap UCL 81990
Kolmogorov-Smirnov 5% Critical Value	0.136	95% BCA Bootstrap UCL 84333
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 109199
		97.5% Chebyshev(Mean, Sd) UCL 128073
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 165148
95% Approximate Gamma UCL	92779	
95% Adjusted Gamma UCL	93816	

Potential UCL to Use	Use 95% Approximate Gamma UCL 92779

Result (chloride (cl))

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics

Minimum	31
Maximum	880
Mean	208.9
Median	117
SD	259
Coefficient of Variation	1.24
Skewness	2.289

Log-transformed Statistics

Minimum of Log Data	3.434
Maximum of Log Data	6.78
Mean of log Data	4.791
SD of log Data	1.082

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.704
Shapiro Wilk Critical Value	0.842

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	359

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	406.9
95% Modified-t UCL	368.9

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.943
Shapiro Wilk Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	705.2
95% Chebyshev (MVUE) UCL	512.6
97.5% Chebyshev (MVUE) UCL	648.1
99% Chebyshev (MVUE) UCL	914.2

Gamma Distribution Test

k star (bias corrected)	0.797
Theta Star	262
nu star	15.94
Approximate Chi Square Value (.05)	7.922
Adjusted Level of Significance	0.0267
Adjusted Chi Square Value	6.962
Anderson-Darling Test Statistic	0.456
Anderson-Darling 5% Critical Value	0.747
Kolmogorov-Smirnov Test Statistic	0.211
Kolmogorov-Smirnov 5% Critical Value	0.274

Data appear Gamma Distributed at 5% Significance Level

Data Distribution

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	420.4
95% Adjusted Gamma UCL	478.4

Nonparametric Statistics

95% CLT UCL	343.6
95% Jackknife UCL	359
95% Standard Bootstrap UCL	342.8
95% Bootstrap-t UCL	582.6
95% Hall's Bootstrap UCL	925.8
95% Percentile Bootstrap UCL	354.4
95% BCA Bootstrap UCL	416.9
95% Chebyshev(Mean, Sd) UCL	565.9
97.5% Chebyshev(Mean, Sd) UCL	720.3
99% Chebyshev(Mean, Sd) UCL	1024

Potential UCL to Use

Use 95% Approximate Gamma UCL 420.4

Result (chromium)

General Statistics

Number of Valid Data	137	Number of Detected Data	87
Number of Distinct Detected Data	58	Number of Non-Detect Data	50
		Percent Non-Detects	36.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1	Minimum Detected	0
Maximum Detected	19	Maximum Detected	2.944
Mean of Detected	7.346	Mean of Detected	1.828
SD of Detected	4.204	SD of Detected	0.599
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	7.3	Maximum Non-Detect	1.988

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	101
Number treated as Detected	36
Single DL Non-Detect Percentage	73.72%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.124	Lilliefors Test Statistic	0.0533
5% Lilliefors Critical Value	0.095	5% Lilliefors Critical Value	0.095
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	5.338	Mean	1.108
SD	4.316	SD	1.61
95% DL/2 (t) UCL	5.949	95% H-Stat (DL/2) UCL	15.21
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.073	Mean in Log Scale	1.442
SD	6.709	SD in Log Scale	0.746
95% MLE (t) UCL	4.022	Mean in Original Scale	5.527
95% MLE (Tiku) UCL	4.9	SD in Original Scale	4.164
		95% Percentile Bootstrap UCL	6.143
		95% BCA Bootstrap UCL	6.178

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.064	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.397	
nu star	533.2	
A-D Test Statistic	0.36	
5% A-D Critical Value	0.759	
K-S Test Statistic	0.759	
5% K-S Critical Value	0.0965	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1	Mean	5.439
Maximum	19	SD	4.257
Mean	6.959	SE of Mean	0.374
Median	6.172	95% KM (t) UCL	6.059
SD	3.609	95% KM (z) UCL	6.054
k star	3.876	95% KM (jackknife) UCL	5.974
Theta star	1.796	95% KM (bootstrap t) UCL	6.057
Nu star	1062	95% KM (BCA) UCL	6.241
AppChi2	987.3	95% KM (Percentile Bootstrap) UCL	6.13
95% Gamma Approximate UCL	7.485	95% KM (Chebyshev) UCL	7.069
95% Adjusted Gamma UCL	7.491	97.5% KM (Chebyshev) UCL	7.775
		99% KM (Chebyshev) UCL	9.161
		Potential UCLs to Use	
		95% KM (Percentile Bootstrap) UCL	6.13

Note: DL/2 is not a recommended method.

Result (copper)

General Statistics

Number of Valid Data	73	Number of Detected Data	48
Number of Distinct Detected Data	27	Number of Non-Detect Data	25
		Percent Non-Detects	34.25%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.5	Minimum Detected	0.916
Maximum Detected	19	Maximum Detected	2.944
Mean of Detected	8.567	Mean of Detected	2.035
SD of Detected	4.027	SD of Detected	0.492
Minimum Non-Detect	5	Minimum Non-Detect	1.609
Maximum Non-Detect	10	Maximum Non-Detect	2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	56
Number treated as Detected	17
Single DL Non-Detect Percentage	76.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.942	Lilliefors Test Statistic	0.972
5% Lilliefors Critical Value	0.947	5% Lilliefors Critical Value	0.947
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.558	Mean	1.671
SD	4.313	SD	0.655
95% DL/2 (t) UCL	7.399	95% H-Stat (DL/2) UCL	6.715
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.149	Mean in Log Scale	1.789
SD	5.271	SD in Log Scale	0.555
95% MLE (t) UCL	7.177	Mean in Original Scale	6.965
95% MLE (Tiku) UCL	8.333	SD in Original Scale	3.998
		95% Percentile Bootstrap UCL	7.747
		95% BCA Bootstrap UCL	7.866

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	4.317	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.984		
nu star	414.4		
A-D Test Statistic	0.298	Nonparametric Statistics	
5% A-D Critical Value	0.753	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.753	Mean	6.963
5% K-S Critical Value	0.128	SD	3.96
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.479
		95% KM (t) UCL	7.761
Assuming Gamma Distribution		95% KM (z) UCL	7.751
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.762
Minimum	0.28	95% KM (bootstrap t) UCL	7.853
Maximum	19	95% KM (BCA) UCL	7.781
Mean	8.071	95% KM (Percentile Bootstrap) UCL	7.725
Median	8	95% KM (Chebyshev) UCL	9.05
SD	3.713	97.5% KM (Chebyshev) UCL	9.953
k star	3.707	99% KM (Chebyshev) UCL	11.73
Theta star	2.177		
Nu star	541.3	Potential UCLs to Use	
AppChi2	488.3	95% KM (Percentile Bootstrap) UCL	7.725
95% Gamma Approximate UCL	8.946		
95% Adjusted Gamma UCL	8.964		

Note: DL/2 is not a recommended method.

Result (cymene)

General Statistics

Number of Valid Data	58	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	51
		Percent Non-Detects	87.93%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.347	Minimum Detected	-1.058
Maximum Detected	11	Maximum Detected	2.398
Mean of Detected	3.15	Mean of Detected	0.32
SD of Detected	3.984	SD of Detected	1.442
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	51
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	7
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	87.93%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.772	Lilliefors Test Statistic	0.843
5% Lilliefors Critical Value	0.803	5% Lilliefors Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.397	Mean	-3.938
SD	1.652	SD	1.925
95% DL/2 (t) UCL	0.759	95% H-Stat (DL/2) UCL	0.169
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.475
		SD in Log Scale	3.729
		Mean in Original Scale	0.388
		SD in Original Scale	1.655
		95% Percentile Bootstrap UCL	0.786
		95% BCA Bootstrap UCL	0.973

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.511	Data appear Gamma Distributed at 5% Significance Level
Theta Star	6.171	
nu star	7.147	
A-D Test Statistic	0.628	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.323	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.347	Mean	0.685
Maximum	11	SD	1.574
Mean	3.146	SE of Mean	0.223
Median	3.15	95% KM (t) UCL	1.059
SD	1.293	95% KM (z) UCL	1.052
k star	4.912	95% KM (jackknife) UCL	1.022
Theta star	0.64	95% KM (bootstrap t) UCL	1.501
Nu star	569.8	95% KM (BCA) UCL	1.739
AppChi2	515.4	95% KM (Percentile Bootstrap) UCL	1.15
95% Gamma Approximate UCL	3.477	95% KM (Chebyshev) UCL	1.658
95% Adjusted Gamma UCL	3.486	97.5% KM (Chebyshev) UCL	2.079
		99% KM (Chebyshev) UCL	2.906
		Potential UCLs to Use	
		95% KM (t) UCL	1.059

Note: DL/2 is not a recommended method.

Result (dibenzofuran)

General Statistics

Number of Valid Data	40	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	28
		Percent Non-Detects	70.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.17	Minimum Detected	-1.772
Maximum Detected	5.3	Maximum Detected	1.668
Mean of Detected	2.274	Mean of Detected	0.486
SD of Detected	1.709	SD of Detected	0.967
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	35
Number treated as Detected	5
Single DL Non-Detect Percentage	87.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.893	Shapiro Wilk Test Statistic	0.918
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.809	Mean	-1.153
SD	1.336	SD	1.256
95% DL/2 (t) UCL	1.165	95% H-Stat (DL/2) UCL	0.702
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	4.137	Mean in Log Scale	-1.111
SD	1.082	SD in Log Scale	1.402
95% MLE (t) UCL	4.425	Mean in Original Scale	0.845
95% MLE (Tiku) UCL	4.943	SD in Original Scale	1.32
		95% Percentile Bootstrap UCL	1.19
		95% BCA Bootstrap UCL	1.292

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.284	Data appear Normal at 5% Significance Level
Theta Star	1.771	
nu star	30.82	
A-D Test Statistic	0.273	
5% A-D Critical Value	0.744	
K-S Test Statistic	0.744	
5% K-S Critical Value	0.249	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.17	Mean	0.806
Maximum	6.055	SD	1.316
Mean	3.085	SE of Mean	0.218
Median	3.131	95% KM (t) UCL	1.172
SD	1.725	95% KM (z) UCL	1.164
k star	2.078	95% KM (jackknife) UCL	1.189
Theta star	1.484	95% KM (bootstrap t) UCL	1.267
Nu star	166.3	95% KM (BCA) UCL	1.709
AppChi2	137.4	95% KM (Percentile Bootstrap) UCL	1.547
95% Gamma Approximate UCL	3.732	95% KM (Chebyshev) UCL	1.754
95% Adjusted Gamma UCL	3.758	97.5% KM (Chebyshev) UCL	2.165
		99% KM (Chebyshev) UCL	2.971
		Potential UCLs to Use	
		95% KM (t) UCL	1.172
		95% KM (Percentile Bootstrap) UCL	1.547

Note: DL/2 is not a recommended method.

Result (dichloromethane)

General Statistics

Number of Valid Data	171	Number of Detected Data	10
Number of Distinct Detected Data	8	Number of Non-Detect Data	161
		Percent Non-Detects	94.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0027	Minimum Detected	-5.915
Maximum Detected	0.069	Maximum Detected	-2.674
Mean of Detected	0.0218	Mean of Detected	-4.39
SD of Detected	0.0239	SD of Detected	1.124
Minimum Non-Detect	0.00093	Minimum Non-Detect	-6.98
Maximum Non-Detect	1.25	Maximum Non-Detect	0.223

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	171
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.762
5% Lilliefors Critical Value	0.842

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.857
5% Lilliefors Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0312
SD	0.095
95% DL/2 (t) UCL	0.0432
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-4.813
SD	1.499
95% H-Stat (DL/2) UCL	0.034
Log ROS Method	
Mean in Log Scale	-7.925
SD in Log Scale	1.71
Mean in Original Scale	0.00205
SD in Original Scale	0.00756
95% Percentile Bootstrap UCL	0.00307
95% BCA Bootstrap UCL	0.00342

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.779
Theta Star	0.0281
nu star	15.57
A-D Test Statistic	0.942
5% A-D Critical Value	0.748
K-S Test Statistic	0.748
5% K-S Critical Value	0.274

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.0912
Mean	0.0318
Median	0.0308
SD	0.025
k star	0.3
Theta star	0.106
Nu star	102.7
AppChi2	80.29
95% Gamma Approximate UCL	0.0407
95% Adjusted Gamma UCL	0.0408

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00429
SD	0.00773
SE of Mean	0.000702
95% KM (t) UCL	0.00545
95% KM (z) UCL	0.00545
95% KM (jackknife) UCL	0.00628
95% KM (bootstrap t) UCL	0.00566
95% KM (BCA) UCL	0.00837
95% KM (Percentile Bootstrap) UCL	0.00805
95% KM (Chebyshev) UCL	0.00735
97.5% KM (Chebyshev) UCL	0.00868
99% KM (Chebyshev) UCL	0.0113

Potential UCLs to Use

95% KM (BCA) UCL	0.00837

Result (dro)

General Statistics

Number of Valid Data	25	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	16
		Percent Non-Detects	64.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	178	Minimum Detected	5.182
Maximum Detected	10800	Maximum Detected	9.287
Mean of Detected	3935	Mean of Detected	7.672
SD of Detected	3941	SD of Detected	1.328
Minimum Non-Detect	50	Minimum Non-Detect	3.912
Maximum Non-Detect	50	Maximum Non-Detect	3.912

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.834	Shapiro Wilk Test Statistic	0.93
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1433	Mean	4.822
SD	2974	SD	2.312
95% DL/2 (t) UCL	2450	95% H-Stat (DL/2) UCL	2746
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.927
		SD in Log Scale	2.589
		Mean in Original Scale	1463
		SD in Original Scale	2960
		95% Percentile Bootstrap UCL	2436
		95% BCA Bootstrap UCL	2661

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.713	Data appear Normal at 5% Significance Level	
Theta Star	5521		
nu star	12.83		
A-D Test Statistic	0.314	**Nonparametric Statistics**	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	1530
5% K-S Critical Value	0.287	SD	2868
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	608.3
		95% KM (t) UCL	2571
Assuming Gamma Distribution		95% KM (z) UCL	2531
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2407
Minimum	1E-09	95% KM (bootstrap t) UCL	3368
Maximum	24019	95% KM (BCA) UCL	3303
Mean	7829	95% KM (Percentile Bootstrap) UCL	2867
Median	5160	95% KM (Chebyshev) UCL	4182
SD	7345	97.5% KM (Chebyshev) UCL	5329
k star	0.25	99% KM (Chebyshev) UCL	7583
Theta star	31374		
Nu star	12.48	**Potential UCLs to Use**	
AppChi2	5.543	95% KM (t) UCL	2571
95% Gamma Approximate UCL	17623	95% KM (Percentile Bootstrap) UCL	2867
95% Adjusted Gamma UCL	18679		

Note: DL/2 is not a recommended method.

Result (ethylbenzene)

General Statistics

Number of Valid Data	170	Number of Detected Data	40
Number of Distinct Detected Data	33	Number of Non-Detect Data	130
		Percent Non-Detects	76.47%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0052	Minimum Detected	-5.259
Maximum Detected	5.7	Maximum Detected	1.74
Mean of Detected	1.012	Mean of Detected	-1.344
SD of Detected	1.567	SD of Detected	1.886
Minimum Non-Detect	0.00096	Minimum Non-Detect	-6.949
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	148
Number treated as Detected	22
Single DL Non-Detect Percentage	87.06%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.667	Lilliefors Test Statistic	0.963
5% Lilliefors Critical Value	0.94	5% Lilliefors Critical Value	0.94
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.248	Mean	-4.318
SD	0.864	SD	2.204
95% DL/2 (t) UCL	0.357	95% H-Stat (DL/2) UCL	0.143
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.225
		SD in Log Scale	3.508
		Mean in Original Scale	0.24
		SD in Original Scale	0.866
		95% Percentile Bootstrap UCL	0.357
		95% BCA Bootstrap UCL	0.387

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.454	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	2.229	
nu star	36.31	
A-D Test Statistic	0.95	
5% A-D Critical Value	0.819	
K-S Test Statistic	0.819	
5% K-S Critical Value	0.148	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0052	Mean	0.243
Maximum	5.7	SD	0.863
Mean	1.32	SE of Mean	0.067
Median	1.026	95% KM (t) UCL	0.353
SD	1.118	95% KM (z) UCL	0.353
k star	1.129	95% KM (jackknife) UCL	0.351
Theta star	1.169	95% KM (bootstrap t) UCL	0.4
Nu star	383.9	95% KM (BCA) UCL	0.365
AppChi2	339.5	95% KM (Percentile Bootstrap) UCL	0.357
95% Gamma Approximate UCL	1.493	95% KM (Chebyshev) UCL	0.535
95% Adjusted Gamma UCL	1.494	97.5% KM (Chebyshev) UCL	0.661
		99% KM (Chebyshev) UCL	0.91
		Potential UCLs to Use	
		95% KM (t) UCL	0.353

Note: DL/2 is not a recommended method.

Result (fluorene)

General Statistics

Number of Valid Data	65	Number of Detected Data	19
Number of Distinct Detected Data	15	Number of Non-Detect Data	46
		Percent Non-Detects	70.77%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.16	Minimum Detected	-1.833
Maximum Detected	6.38	Maximum Detected	1.853
Mean of Detected	2.502	Mean of Detected	0.597
SD of Detected	1.921	SD of Detected	0.906
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	56
Number treated as Detected	9
Single DL Non-Detect Percentage	86.15%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.856	Lilliefors Test Statistic	0.93
5% Lilliefors Critical Value	0.901	5% Lilliefors Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.851	Mean	-1.147
SD	1.481	SD	1.26
95% DL/2 (t) UCL	1.158	95% H-Stat (DL/2) UCL	0.933
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.092
		SD in Log Scale	1.433
		Mean in Original Scale	0.901
		SD in Original Scale	1.462
		95% Percentile Bootstrap UCL	1.232
		95% BCA Bootstrap UCL	1.3

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.474	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.697	
nu star	56.03	
A-D Test Statistic	0.412	
5% A-D Critical Value	0.755	
K-S Test Statistic	0.755	
5% K-S Critical Value	0.202	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.847
Maximum	6.38	SD	1.469
Mean	2.532	SE of Mean	0.187
Median	2.238	95% KM (t) UCL	1.16
SD	1.636	95% KM (z) UCL	1.155
k star	0.426	95% KM (jackknife) UCL	1.151
Theta star	5.94	95% KM (bootstrap t) UCL	1.223
Nu star	55.42	95% KM (BCA) UCL	1.633
AppChi2	39.32	95% KM (Percentile Bootstrap) UCL	1.506
95% Gamma Approximate UCL	3.57	95% KM (Chebyshev) UCL	1.664
95% Adjusted Gamma UCL	3.598	97.5% KM (Chebyshev) UCL	2.017
		99% KM (Chebyshev) UCL	2.711
		Potential UCLs to Use	
		95% KM (t) UCL	1.16

Note: DL/2 is not a recommended method.

Result (fluoride)

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics

Minimum	2.8
Maximum	19
Mean	10.95
Median	10.45
SD	4.707
Coefficient of Variation	0.43
Skewness	-0.0263

Log-transformed Statistics

Minimum of Log Data	1.03
Maximum of Log Data	2.944
Mean of log Data	2.283
SD of log Data	0.545

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.983
Shapiro Wilk Critical Value	0.842

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	13.68

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	13.39
95% Modified-t UCL	13.68

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	17.23
95% Chebyshev (MVUE) UCL	19.78
97.5% Chebyshev (MVUE) UCL	23.49
99% Chebyshev (MVUE) UCL	30.79

Gamma Distribution Test

k star (bias corrected)	3.344
Theta Star	3.275
nu star	66.88
Approximate Chi Square Value (.05)	49.06
Adjusted Level of Significance	0.0267
Adjusted Chi Square Value	46.42
Anderson-Darling Test Statistic	0.303
Anderson-Darling 5% Critical Value	0.729
Kolmogorov-Smirnov Test Statistic	0.16
Kolmogorov-Smirnov 5% Critical Value	0.268

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	14.93
95% Adjusted Gamma UCL	15.78

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	13.4
95% Jackknife UCL	13.68
95% Standard Bootstrap UCL	13.29
95% Bootstrap-t UCL	13.57
95% Hall's Bootstrap UCL	13.63
95% Percentile Bootstrap UCL	13.28
95% BCA Bootstrap UCL	13.25
95% Chebyshev(Mean, Sd) UCL	17.44
97.5% Chebyshev(Mean, Sd) UCL	20.25
99% Chebyshev(Mean, Sd) UCL	25.76

Potential UCL to Use

Use 95% Student's-t UCL 13.68

Result (gro)

General Statistics

Number of Valid Data	25	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	15
		Percent Non-Detects	60.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.6	Minimum Detected	0.47
Maximum Detected	386	Maximum Detected	5.956
Mean of Detected	117.6	Mean of Detected	3.884
SD of Detected	123	SD of Detected	1.841
Minimum Non-Detect	1	Minimum Non-Detect	0
Maximum Non-Detect	1	Maximum Non-Detect	0

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.863	Shapiro Wilk Test Statistic	0.872
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	47.35	Mean	1.138
SD	95.41	SD	2.551
95% DL/2 (t) UCL	80	95% H-Stat (DL/2) UCL	150.7
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.718
		SD in Log Scale	3.24
		Mean in Original Scale	47.54
		SD in Original Scale	95.31
		95% Percentile Bootstrap UCL	81.61
		95% BCA Bootstrap UCL	95.64

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.547	Data appear Normal at 5% Significance Level
Theta Star	215	
nu star	10.94	
A-D Test Statistic	0.272	
5% A-D Critical Value	0.762	
K-S Test Statistic	0.762	
5% K-S Critical Value	0.277	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	48.01
Maximum	710.6	SD	93.15
Mean	204.4	SE of Mean	19.64
Median	113.4	95% KM (t) UCL	81.61
SD	209.3	95% KM (z) UCL	80.31
k star	0.258	95% KM (jackknife) UCL	80.02
Theta star	792	95% KM (bootstrap t) UCL	106.7
Nu star	12.9	95% KM (BCA) UCL	98.75
AppChi2	5.828	95% KM (Percentile Bootstrap) UCL	91.66
95% Gamma Approximate UCL	452.5	95% KM (Chebyshev) UCL	133.6
95% Adjusted Gamma UCL	479	97.5% KM (Chebyshev) UCL	170.6
		99% KM (Chebyshev) UCL	243.4
		Potential UCLs to Use	
		95% KM (t) UCL	81.61
		95% KM (Percentile Bootstrap) UCL	91.66

Note: DL/2 is not a recommended method.

Result (iron)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	32

Raw Statistics		Log-transformed Statistics	
Minimum	1700	Minimum of Log Data	7.438
Maximum	22000	Maximum of Log Data	9.999
Mean	8858	Mean of log Data	8.917
Median	7900	SD of log Data	0.633
SD	4933		
Coefficient of Variation	0.557		
Skewness	0.779		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.938	Shapiro Wilk Test Statistic	0.946
Shapiro Wilk Critical Value	0.946	Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	10066	95% H-UCL	10957
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12993
95% Adjusted-CLT UCL	10129	97.5% Chebyshev (MVUE) UCL	14694
95% Modified-t UCL	10079	99% Chebyshev (MVUE) UCL	18034

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.875	Data appear Gamma Distributed at 5% Significance Level
Theta Star	3081	
nu star	270.3	
Approximate Chi Square Value (.05)	233.2	
Adjusted Level of Significance	0.0449	
Adjusted Chi Square Value	232.1	
Anderson-Darling Test Statistic	0.309	
Anderson-Darling 5% Critical Value	0.756	
Kolmogorov-Smirnov Test Statistic	0.0923	
Kolmogorov-Smirnov 5% Critical Value	0.13	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	10041
95% Jackknife UCL	10066
95% Standard Bootstrap UCL	10003
95% Bootstrap-t UCL	10151
95% Hall's Bootstrap UCL	10148
95% Percentile Bootstrap UCL	10040
95% BCA Bootstrap UCL	10200
95% Chebyshev(Mean, Sd) UCL	11994
97.5% Chebyshev(Mean, Sd) UCL	13351
99% Chebyshev(Mean, Sd) UCL	16017

Assuming Gamma Distribution	
95% Approximate Gamma UCL	10266
95% Adjusted Gamma UCL	10314

Potential UCL to Use	Use 95% Approximate Gamma UCL 10266

Result (isopropylbenzene)

General Statistics

Number of Valid Data	58	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	45
		Percent Non-Detects	77.59%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0247	Minimum Detected	-3.701
Maximum Detected	5	Maximum Detected	1.609
Mean of Detected	0.843	Mean of Detected	-1.314
SD of Detected	1.367	SD of Detected	1.693
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	51
Number treated as Detected	7
Single DL Non-Detect Percentage	87.93%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.633	Lilliefors Test Statistic	0.949
5% Lilliefors Critical Value	0.866	5% Lilliefors Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.204	Mean	-3.798
SD	0.717	SD	1.82
95% DL/2 (t) UCL	0.361	95% H-Stat (DL/2) UCL	0.15
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.984
		SD in Log Scale	3.313
		Mean in Original Scale	0.192
		SD in Original Scale	0.72
		95% Percentile Bootstrap UCL	0.365
		95% BCA Bootstrap UCL	0.452

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.473	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.784	
nu star	12.29	
A-D Test Statistic	0.452	
5% A-D Critical Value	0.786	
K-S Test Statistic	0.786	
5% K-S Critical Value	0.249	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.209
Maximum	5	SD	0.709
Mean	0.644	SE of Mean	0.0969
Median	0.56	95% KM (t) UCL	0.371
SD	0.78	95% KM (z) UCL	0.368
k star	0.163	95% KM (jackknife) UCL	0.362
Theta star	3.946	95% KM (bootstrap t) UCL	0.585
Nu star	18.94	95% KM (BCA) UCL	0.426
AppChi2	10.07	95% KM (Percentile Bootstrap) UCL	0.384
95% Gamma Approximate UCL	1.211	95% KM (Chebyshev) UCL	0.631
95% Adjusted Gamma UCL	1.232	97.5% KM (Chebyshev) UCL	0.814
		99% KM (Chebyshev) UCL	1.173
		Potential UCLs to Use	
		95% KM (t) UCL	0.371

Note: DL/2 is not a recommended method.

Result (lead)

General Statistics

Number of Valid Data	162	Number of Detected Data	114
Number of Distinct Detected Data	79	Number of Non-Detect Data	48
		Percent Non-Detects	29.63%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.75	Minimum Detected	-0.288
Maximum Detected	65	Maximum Detected	4.174
Mean of Detected	10.6	Mean of Detected	1.977
SD of Detected	10.76	SD of Detected	0.882
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	44	Maximum Non-Detect	3.784

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	159
Number treated as Detected	3
Single DL Non-Detect Percentage	98.15%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.202	Lilliefors Test Statistic	0.0687
5% Lilliefors Critical Value	0.083	5% Lilliefors Critical Value	0.083
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.716	Mean	1.772
SD	9.638	SD	1.205
95% DL/2 (t) UCL	10.97	95% H-Stat (DL/2) UCL	16.11
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	1.719
		SD in Log Scale	0.951
		Mean in Original Scale	8.7
		SD in Original Scale	9.661
		95% Percentile Bootstrap UCL	10.02
		95% BCA Bootstrap UCL	10.15

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.413	Data appear Lognormal at 5% Significance Level
Theta Star	7.506	
nu star	322.1	
A-D Test Statistic	2.099	
5% A-D Critical Value	0.771	
K-S Test Statistic	0.771	
5% K-S Critical Value	0.0875	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	8.801
Maximum	65	SD	9.744
Mean	9.834	SE of Mean	0.791
Median	6.525	95% KM (t) UCL	10.11
SD	9.916	95% KM (z) UCL	10.1
k star	0.306	95% KM (jackknife) UCL	10.11
Theta star	32.11	95% KM (bootstrap t) UCL	10.38
Nu star	99.22	95% KM (BCA) UCL	10.1
AppChi2	77.24	95% KM (Percentile Bootstrap) UCL	10.16
95% Gamma Approximate UCL	12.63	95% KM (Chebyshev) UCL	12.25
95% Adjusted Gamma UCL	12.66	97.5% KM (Chebyshev) UCL	13.74
		99% KM (Chebyshev) UCL	16.67
		Potential UCLs to Use	
		95% KM (BCA) UCL	10.1

Note: DL/2 is not a recommended method.

Result (m,p-xylene)

General Statistics

Number of Valid Data	97	Number of Detected Data	23
Number of Distinct Detected Data	21	Number of Non-Detect Data	74
		Percent Non-Detects	76.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.003	Minimum Detected	-5.809
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	0.813	Mean of Detected	-1.914
SD of Detected	1.158	SD of Detected	2.388
Minimum Non-Detect	0.0016	Minimum Non-Detect	-6.438
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	86
Number treated as Detected	11
Single DL Non-Detect Percentage	88.66%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.728	Lilliefors Test Statistic	0.915
5% Lilliefors Critical Value	0.914	5% Lilliefors Critical Value	0.914
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.21	Mean	-4.028
SD	0.65	SD	2.139
95% DL/2 (t) UCL	0.32	95% H-Stat (DL/2) UCL	0.302
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.094
		SD in Log Scale	3.881
		Mean in Original Scale	0.194
		SD in Original Scale	0.654
		95% Percentile Bootstrap UCL	0.312
		95% BCA Bootstrap UCL	0.345

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.366	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2.222		
nu star	16.83		
A-D Test Statistic	0.611	Nonparametric Statistics	
5% A-D Critical Value	0.83	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.83	Mean	0.196
5% K-S Critical Value	0.195	SD	0.65
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0675
		95% KM (t) UCL	0.308
Assuming Gamma Distribution		95% KM (z) UCL	0.307
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.306
Minimum	0.003	95% KM (bootstrap t) UCL	0.368
Maximum	3.9	95% KM (BCA) UCL	0.321
Mean	0.775	95% KM (Percentile Bootstrap) UCL	0.318
Median	0.4	95% KM (Chebyshev) UCL	0.49
SD	0.875	97.5% KM (Chebyshev) UCL	0.618
k star	0.696	99% KM (Chebyshev) UCL	0.868
Theta star	1.113		
Nu star	135.1	Potential UCLs to Use	
AppChi2	109.2	95% KM (t) UCL	0.308
95% Gamma Approximate UCL	0.958		
95% Adjusted Gamma UCL	0.961		

Note: DL/2 is not a recommended method.

Result (magnesium)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	36

Raw Statistics		Log-transformed Statistics	
Minimum	1100	Minimum of Log Data	7.003
Maximum	17000	Maximum of Log Data	9.741
Mean	5118	Mean of log Data	8.379
Median	4800	SD of log Data	0.595
SD	2969		
Coefficient of Variation	0.58		
Skewness	1.559		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Test Statistic	0.972
Shapiro Wilk Critical Value	0.946	Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	5845	95% H-UCL	6171
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7271
95% Adjusted-CLT UCL	5936	97.5% Chebyshev (MVUE) UCL	8178
95% Modified-t UCL	5862	99% Chebyshev (MVUE) UCL	9957

Gamma Distribution Test		Data Distribution
k star (bias corrected)	3.064	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1670	
nu star	288.1	
Approximate Chi Square Value (.05)	249.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.0449	95% CLT UCL 5831
Adjusted Chi Square Value	248.6	95% Jackknife UCL 5845
		95% Standard Bootstrap UCL 5841
Anderson-Darling Test Statistic	0.27	95% Bootstrap-t UCL 5942
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL 6088
Kolmogorov-Smirnov Test Statistic	0.0858	95% Percentile Bootstrap UCL 5857
Kolmogorov-Smirnov 5% Critical Value	0.13	95% BCA Bootstrap UCL 5940
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7006
		97.5% Chebyshev(Mean, Sd) UCL 7823
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 9428
95% Approximate Gamma UCL	5903	
95% Adjusted Gamma UCL	5930	

Potential UCL to Use	Use 95% Approximate Gamma UCL 5903

Result (manganese)

General Statistics

Number of Valid Observations	47	Number of Distinct Observations	34

Raw Statistics		Log-transformed Statistics	
Minimum	35	Minimum of Log Data	3.555
Maximum	540	Maximum of Log Data	6.292
Mean	126.7	Mean of log Data	4.606
Median	91	SD of log Data	0.667
SD	102.4		
Coefficient of Variation	0.809		
Skewness	2.268		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.765	Shapiro Wilk Test Statistic	0.96
Shapiro Wilk Critical Value	0.946	Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	151.7	95% H-UCL	152.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	181.4
95% Adjusted-CLT UCL	156.5	97.5% Chebyshev (MVUE) UCL	206.1
95% Modified-t UCL	152.6	99% Chebyshev (MVUE) UCL	254.6

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.141	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	59.15	
nu star	201.3	
Approximate Chi Square Value (.05)	169.5	Nonparametric Statistics
Adjusted Level of Significance	0.0449	95% CLT UCL 151.2
Adjusted Chi Square Value	168.5	95% Jackknife UCL 151.7
		95% Standard Bootstrap UCL 151
Anderson-Darling Test Statistic	0.913	95% Bootstrap-t UCL 160.3
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL 168.5
Kolmogorov-Smirnov Test Statistic	0.121	95% Percentile Bootstrap UCL 152.1
Kolmogorov-Smirnov 5% Critical Value	0.131	95% BCA Bootstrap UCL 156.9
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 191.8
		97.5% Chebyshev(Mean, Sd) UCL 219.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 275.3
95% Approximate Gamma UCL	150.4	
95% Adjusted Gamma UCL	151.3	

Potential UCL to Use	Use 95% Approximate Gamma UCL 150.4

Result (methylbenzene)

General Statistics

Number of Valid Data	170	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	162
		Percent Non-Detects	95.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0039	Minimum Detected	-5.547
Maximum Detected	0.075	Maximum Detected	-2.59
Mean of Detected	0.0241	Mean of Detected	-4.256
SD of Detected	0.0248	SD of Detected	1.148
Minimum Non-Detect	0.0012	Minimum Non-Detect	-6.725
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	170
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.826
5% Lilliefors Critical Value	0.818

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.0132
SD	0.0206
95% DL/2 (t) UCL	0.0158
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.894
5% Lilliefors Critical Value	0.818

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-5.23
SD	1.322
95% H-Stat (DL/2) UCL	0.016
Log ROS Method	
Mean in Log Scale	-8.081
SD in Log Scale	1.739
Mean in Original Scale	0.00184
SD in Original Scale	0.0072
95% Percentile Bootstrap UCL	0.0029
95% BCA Bootstrap UCL	0.00322

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.759
Theta Star	0.0317
nu star	12.15
A-D Test Statistic	0.433
5% A-D Critical Value	0.734
K-S Test Statistic	0.734
5% K-S Critical Value	0.301

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.194
Mean	0.074
Median	0.0721
SD	0.0532
k star	0.496
Theta star	0.149
Nu star	168.7
AppChi2	139.6
95% Gamma Approximate UCL	0.0894
95% Adjusted Gamma UCL	0.0895

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00511
SD	0.00708
SE of Mean	0.00063
95% KM (t) UCL	0.00615
95% KM (z) UCL	0.00614
95% KM (jackknife) UCL	0.0059
95% KM (bootstrap t) UCL	0.0068
95% KM (BCA) UCL	0.0115
95% KM (Percentile Bootstrap) UCL	0.0101
95% KM (Chebyshev) UCL	0.00785
97.5% KM (Chebyshev) UCL	0.00904
99% KM (Chebyshev) UCL	0.0114

Potential UCLs to Use

95% KM (t) UCL	0.00615
95% KM (Percentile Bootstrap) UCL	0.0101

Result (naphthalene)

General Statistics

Number of Valid Data	99	Number of Detected Data	29
Number of Distinct Detected Data	26	Number of Non-Detect Data	70
		Percent Non-Detects	70.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.14	Minimum Detected	-1.966
Maximum Detected	10	Maximum Detected	2.303
Mean of Detected	4.071	Mean of Detected	0.915
SD of Detected	3.191	SD of Detected	1.185
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	81
Number treated as Detected	18
Single DL Non-Detect Percentage	81.82%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.901	Lilliefors Test Statistic	0.903
5% Lilliefors Critical Value	0.926	5% Lilliefors Critical Value	0.926
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.264	Mean	-1.979
SD	2.495	SD	2.304
95% DL/2 (t) UCL	1.681	95% H-Stat (DL/2) UCL	1.876
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.567
		SD in Log Scale	2.032
		Mean in Original Scale	1.29
		SD in Original Scale	2.482
		95% Percentile Bootstrap UCL	1.704
		95% BCA Bootstrap UCL	1.776

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.063	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	3.829	
nu star	61.67	
A-D Test Statistic	0.71	
5% A-D Critical Value	0.77	
K-S Test Statistic	0.77	
5% K-S Critical Value	0.167	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.14	Mean	1.294
Maximum	10	SD	2.465
Mean	4.454	SE of Mean	0.252
Median	4.596	95% KM (t) UCL	1.713
SD	1.875	95% KM (z) UCL	1.709
k star	3.225	95% KM (jackknife) UCL	1.637
Theta star	1.381	95% KM (bootstrap t) UCL	1.727
Nu star	638.6	95% KM (BCA) UCL	1.953
AppChi2	580.9	95% KM (Percentile Bootstrap) UCL	1.826
95% Gamma Approximate UCL	4.896	95% KM (Chebyshev) UCL	2.394
95% Adjusted Gamma UCL	4.903	97.5% KM (Chebyshev) UCL	2.869
		99% KM (Chebyshev) UCL	3.803
		Potential UCLs to Use	
		95% KM (t) UCL	1.713

Note: DL/2 is not a recommended method.

Result (n-butylbenzene)

General Statistics

Number of Valid Data	58	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	48
		Percent Non-Detects	82.76%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.158	Minimum Detected	-1.845
Maximum Detected	5.5	Maximum Detected	1.705
Mean of Detected	1.7	Mean of Detected	-0.165
SD of Detected	2.065	SD of Detected	1.255
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	49
Number treated as Detected	9
Single DL Non-Detect Percentage	84.48%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.728	Lilliefors Test Statistic	0.917
5% Lilliefors Critical Value	0.842	5% Lilliefors Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.309	Mean	-3.723
SD	1.041	SD	1.965
95% DL/2 (t) UCL	0.538	95% H-Stat (DL/2) UCL	0.238
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.831
		SD in Log Scale	2.918
		Mean in Original Scale	0.304
		SD in Original Scale	1.042
		95% Percentile Bootstrap UCL	0.552
		95% BCA Bootstrap UCL	0.659

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.66	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.576	
nu star	13.2	
A-D Test Statistic	0.642	
5% A-D Critical Value	0.754	
K-S Test Statistic	0.754	
5% K-S Critical Value	0.275	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.424
Maximum	5.5	SD	1.001
Mean	1.454	SE of Mean	0.138
Median	1.385	95% KM (t) UCL	0.655
SD	1.316	95% KM (z) UCL	0.652
k star	0.174	95% KM (jackknife) UCL	0.606
Theta star	8.372	95% KM (bootstrap t) UCL	1.004
Nu star	20.14	95% KM (BCA) UCL	0.852
AppChi2	10.96	95% KM (Percentile Bootstrap) UCL	0.75
95% Gamma Approximate UCL	2.673	95% KM (Chebyshev) UCL	1.027
95% Adjusted Gamma UCL	2.715	97.5% KM (Chebyshev) UCL	1.289
		99% KM (Chebyshev) UCL	1.802
		Potential UCLs to Use	
		95% KM (t) UCL	0.655

Note: DL/2 is not a recommended method.

Result (nickel)

General Statistics

Number of Valid Data	73	Number of Detected Data	37
Number of Distinct Detected Data	23	Number of Non-Detect Data	36
		Percent Non-Detects	49.32%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.1	Minimum Detected	1.411
Maximum Detected	19	Maximum Detected	2.944
Mean of Detected	8.251	Mean of Detected	2.041
SD of Detected	3.258	SD of Detected	0.373
Minimum Non-Detect	8	Minimum Non-Detect	2.079
Maximum Non-Detect	16	Maximum Non-Detect	2.773

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	72
Number treated as Detected	1
Single DL Non-Detect Percentage	98.63%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.911	Lilliefors Test Statistic	0.971
5% Lilliefors Critical Value	0.936	5% Lilliefors Critical Value	0.936
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.319	Mean	1.747
SD	3.132	SD	0.422
95% DL/2 (t) UCL	6.93	95% H-Stat (DL/2) UCL	6.658
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.885
		SD in Log Scale	0.353
		Mean in Original Scale	7.028
		SD in Original Scale	2.784
		95% Percentile Bootstrap UCL	7.596
		95% BCA Bootstrap UCL	7.657

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	6.798	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1.214	
nu star	503	
A-D Test Statistic	0.389	
5% A-D Critical Value	0.749	
K-S Test Statistic	0.749	
5% K-S Critical Value	0.145	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	4.1	Mean	7
Maximum	19	SD	2.754
Mean	8.371	SE of Mean	0.361
Median	8.444	95% KM (t) UCL	7.602
SD	2.355	95% KM (z) UCL	7.594
k star	13.18	95% KM (jackknife) UCL	7.604
Theta star	0.635	95% KM (bootstrap t) UCL	7.727
Nu star	1925	95% KM (BCA) UCL	7.639
AppChi2	1824	95% KM (Percentile Bootstrap) UCL	7.613
95% Gamma Approximate UCL	8.834	95% KM (Chebyshev) UCL	8.575
95% Adjusted Gamma UCL	8.843	97.5% KM (Chebyshev) UCL	9.257
		99% KM (Chebyshev) UCL	10.6
		Potential UCLs to Use	
		95% KM (t) UCL	7.602

Note: DL/2 is not a recommended method.

Result (nitrate + nitrite)

General Statistics

Number of Valid Data	20	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	4
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.156	Minimum Detected	-1.858
Maximum Detected	44.9	Maximum Detected	3.804
Mean of Detected	8.507	Mean of Detected	1.274
SD of Detected	11.8	SD of Detected	1.519
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.695	Shapiro Wilk Test Statistic	0.975
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.815	Mean	0.42
SD	11.05	SD	2.212
95% DL/2 (t) UCL	11.09	95% H-Stat (DL/2) UCL	144.4
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.139	Mean in Log Scale	0.567
SD	12.61	SD in Log Scale	2.001
95% MLE (t) UCL	10.01	Mean in Original Scale	6.83
95% MLE (Tiku) UCL	9.949	SD in Original Scale	11.04
		95% Percentile Bootstrap UCL	11.26
		95% BCA Bootstrap UCL	13.07

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.608	Data appear Gamma Distributed at 5% Significance Level
Theta Star	13.99	
nu star	19.46	
A-D Test Statistic	0.258	
5% A-D Critical Value	0.779	
K-S Test Statistic	0.779	
5% K-S Critical Value	0.224	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	6.836
Maximum	44.9	SD	10.75
Mean	6.805	SE of Mean	2.484
Median	2.59	95% KM (t) UCL	11.13
SD	11.05	95% KM (z) UCL	10.92
k star	0.163	95% KM (jackknife) UCL	11.06
Theta star	41.85	95% KM (bootstrap t) UCL	15.24
Nu star	6.504	95% KM (BCA) UCL	11.4
AppChi2	1.903	95% KM (Percentile Bootstrap) UCL	11.03
95% Gamma Approximate UCL	23.26	95% KM (Chebyshev) UCL	17.66
95% Adjusted Gamma UCL	25.84	97.5% KM (Chebyshev) UCL	22.35
		99% KM (Chebyshev) UCL	31.55
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	17.66

Note: DL/2 is not a recommended method.

Result (n-nitrosodiphenylamine & diphenylamine)

General Statistics

Number of Valid Data	14	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	9
		Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.8	Minimum Detected	1.03
Maximum Detected	9.4	Maximum Detected	2.241
Mean of Detected	6.64	Mean of Detected	1.817
SD of Detected	2.488	SD of Detected	0.471
Minimum Non-Detect	0.4	Minimum Non-Detect	-0.916
Maximum Non-Detect	2	Maximum Non-Detect	0.693

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	5
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	64.29%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.863
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.564	Mean	-0.239
SD	3.447	SD	1.664
95% DL/2 (t) UCL	4.196	95% H-Stat (DL/2) UCL	5.938
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.14	Mean in Log Scale	0.862
SD	5.925	SD in Log Scale	0.86
95% MLE (t) UCL	2.945	Mean in Original Scale	3.345
95% MLE (Tiku) UCL	4.374	SD in Original Scale	2.94
		95% Percentile Bootstrap UCL	4.723
		95% BCA Bootstrap UCL	4.858

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.843	Data appear Normal at 5% Significance Level	
Theta Star	2.336		
nu star	28.43		
A-D Test Statistic	0.377	**Nonparametric Statistics**	
5% A-D Critical Value	0.68	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.68	Mean	4.171
5% K-S Critical Value	0.358	SD	2.27
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.678
		95% KM (t) UCL	5.373
Assuming Gamma Distribution		95% KM (z) UCL	5.287
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.099
Minimum	2.8	95% KM (bootstrap t) UCL	4.941
Maximum	10.48	95% KM (BCA) UCL	7.586
Mean	7.107	95% KM (Percentile Bootstrap) UCL	7.457
Median	7.317	95% KM (Chebyshev) UCL	7.128
SD	2.286	97.5% KM (Chebyshev) UCL	8.408
k star	6.511	99% KM (Chebyshev) UCL	10.92
Theta star	1.092		
Nu star	182.3	**Potential UCLs to Use**	
AppChi2	152.1	95% KM (t) UCL	5.373
95% Gamma Approximate UCL	8.52	95% KM (Percentile Bootstrap) UCL	7.457
95% Adjusted Gamma UCL	8.73		

Note: DL/2 is not a recommended method.

Result (n-propylbenzene)

General Statistics

Number of Valid Data	58	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	46
		Percent Non-Detects	79.31%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0261	Minimum Detected	-3.646
Maximum Detected	7.8	Maximum Detected	2.054
Mean of Detected	1.144	Mean of Detected	-1.308
SD of Detected	2.194	SD of Detected	1.854
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	52
Number treated as Detected	6
Single DL Non-Detect Percentage	89.66%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.557	Lilliefors Test Statistic	0.933
5% Lilliefors Critical Value	0.859	5% Lilliefors Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.252	Mean	-3.838
SD	1.068	SD	1.808
95% DL/2 (t) UCL	0.487	95% H-Stat (DL/2) UCL	0.145
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.674
		SD in Log Scale	3.68
		Mean in Original Scale	0.239
		SD in Original Scale	1.071
		95% Percentile Bootstrap UCL	0.5
		95% BCA Bootstrap UCL	0.739

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.392	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.92	
nu star	9.4	
A-D Test Statistic	0.628	
5% A-D Critical Value	0.795	
K-S Test Statistic	0.795	
5% K-S Critical Value	0.26	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.258
Maximum	7.8	SD	1.057
Mean	0.897	SE of Mean	0.145
Median	0.724	95% KM (t) UCL	0.5
SD	1.175	95% KM (z) UCL	0.496
k star	0.144	95% KM (jackknife) UCL	0.485
Theta star	6.232	95% KM (bootstrap t) UCL	1.118
Nu star	16.7	95% KM (BCA) UCL	0.587
AppChi2	8.461	95% KM (Percentile Bootstrap) UCL	0.534
95% Gamma Approximate UCL	1.772	95% KM (Chebyshev) UCL	0.89
95% Adjusted Gamma UCL	1.804	97.5% KM (Chebyshev) UCL	1.163
		99% KM (Chebyshev) UCL	1.7
		Potential UCLs to Use	
		95% KM (t) UCL	0.5

Note: DL/2 is not a recommended method.

Result (o-xylene)

General Statistics

Number of Valid Data	97	Number of Detected Data	30
Number of Distinct Detected Data	28	Number of Non-Detect Data	67
		Percent Non-Detects	69.07%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0019	Minimum Detected	-6.266
Maximum Detected	4.5	Maximum Detected	1.504
Mean of Detected	0.742	Mean of Detected	-2.322
SD of Detected	1.231	SD of Detected	2.367
Minimum Non-Detect	0.00081	Minimum Non-Detect	-7.118
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	87
Number treated as Detected	10
Single DL Non-Detect Percentage	89.69%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.664	Lilliefors Test Statistic	0.931
5% Lilliefors Critical Value	0.927	5% Lilliefors Critical Value	0.927
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.243	Mean	-3.947
SD	0.755	SD	2.12
95% DL/2 (t) UCL	0.371	95% H-Stat (DL/2) UCL	0.364
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.044
		SD in Log Scale	3.396
		Mean in Original Scale	0.231
		SD in Original Scale	0.759
		95% Percentile Bootstrap UCL	0.361
		95% BCA Bootstrap UCL	0.399

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.323	Data appear Lognormal at 5% Significance Level
Theta Star	2.293	
nu star	19.41	
A-D Test Statistic	1.445	
5% A-D Critical Value	0.846	
K-S Test Statistic	0.846	
5% K-S Critical Value	0.173	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0019	Mean	0.233
Maximum	4.5	SD	0.754
Mean	0.745	SE of Mean	0.0779
Median	0.737	95% KM (t) UCL	0.362
SD	0.677	95% KM (z) UCL	0.361
k star	0.908	95% KM (jackknife) UCL	0.361
Theta star	0.82	95% KM (bootstrap t) UCL	0.408
Nu star	176.2	95% KM (BCA) UCL	0.379
AppChi2	146.5	95% KM (Percentile Bootstrap) UCL	0.369
95% Gamma Approximate UCL	0.896	95% KM (Chebyshev) UCL	0.572
95% Adjusted Gamma UCL	0.899	97.5% KM (Chebyshev) UCL	0.719
		99% KM (Chebyshev) UCL	1.008
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	0.719

Note: DL/2 is not a recommended method.

Result (petroleum hydrocarbons)

General Statistics

Number of Valid Data	25	Number of Detected Data	15
Number of Distinct Detected Data	13	Number of Non-Detect Data	10
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	34	Minimum Detected	3.526
Maximum Detected	9100	Maximum Detected	9.116
Mean of Detected	3519	Mean of Detected	7.175
SD of Detected	3428	SD of Detected	1.949
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	13	Maximum Non-Detect	2.565

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	15
Single DL Non-Detect Percentage	40.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.847	Shapiro Wilk Test Statistic	0.85
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2114	Mean	5.009
SD	3153	SD	3.09
95% DL/2 (t) UCL	3192	95% H-Stat (DL/2) UCL	71041
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	773.2	Mean in Log Scale	5.399
SD	4538	SD in Log Scale	2.734
95% MLE (t) UCL	2326	Mean in Original Scale	2120
95% MLE (Tiku) UCL	2519	SD in Original Scale	3148
		95% Percentile Bootstrap UCL	3209
		95% BCA Bootstrap UCL	3275

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.541	Data appear Gamma Distributed at 5% Significance Level
Theta Star	6508	
nu star	16.22	
A-D Test Statistic	0.525	
5% A-D Critical Value	0.784	
K-S Test Statistic	0.784	
5% K-S Critical Value	0.232	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	34	Mean	2125
Maximum	9100	SD	3081
Mean	2703	SE of Mean	637.9
Median	1800	95% KM (t) UCL	3216
SD	2877	95% KM (z) UCL	3174
k star	0.694	95% KM (jackknife) UCL	3195
Theta star	3897	95% KM (bootstrap t) UCL	3530
Nu star	34.69	95% KM (BCA) UCL	3267
AppChi2	22.21	95% KM (Percentile Bootstrap) UCL	3235
95% Gamma Approximate UCL	4221	95% KM (Chebyshev) UCL	4905
95% Adjusted Gamma UCL	4355	97.5% KM (Chebyshev) UCL	6108
		99% KM (Chebyshev) UCL	8472
		Potential UCLs to Use	
		95% KM (BCA) UCL	3267

Note: DL/2 is not a recommended method.

Result (phenanthrene)

General Statistics

Number of Valid Data	65	Number of Detected Data	21
Number of Distinct Detected Data	18	Number of Non-Detect Data	44
		Percent Non-Detects	67.69%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.38	Minimum Detected	-0.968
Maximum Detected	18	Maximum Detected	2.89
Mean of Detected	5.904	Mean of Detected	1.295
SD of Detected	4.821	SD of Detected	1.172
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	46
Number treated as Detected	19
Single DL Non-Detect Percentage	70.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.915	Lilliefors Test Statistic	0.903
5% Lilliefors Critical Value	0.908	5% Lilliefors Critical Value	0.908
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.007	Mean	-0.895
SD	3.825	SD	1.667
95% DL/2 (t) UCL	2.799	95% H-Stat (DL/2) UCL	1.355
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.079
		SD in Log Scale	2.075
		Mean in Original Scale	2.047
		SD in Original Scale	3.808
		95% Percentile Bootstrap UCL	2.867
		95% BCA Bootstrap UCL	2.978

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.042	Data appear Normal at 5% Significance Level
Theta Star	5.665	
nu star	43.78	
A-D Test Statistic	0.456	
5% A-D Critical Value	0.766	
K-S Test Statistic	0.766	
5% K-S Critical Value	0.194	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	2.165
Maximum	18	SD	3.718
Mean	6.74	SE of Mean	0.473
Median	5.954	95% KM (t) UCL	2.954
SD	4.835	95% KM (z) UCL	2.942
k star	0.388	95% KM (jackknife) UCL	2.883
Theta star	17.36	95% KM (bootstrap t) UCL	3.163
Nu star	50.47	95% KM (BCA) UCL	3.285
AppChi2	35.16	95% KM (Percentile Bootstrap) UCL	3.038
95% Gamma Approximate UCL	9.675	95% KM (Chebyshev) UCL	4.225
95% Adjusted Gamma UCL	9.755	97.5% KM (Chebyshev) UCL	5.116
		99% KM (Chebyshev) UCL	6.867
		Potential UCLs to Use	
		95% KM (t) UCL	2.954
		95% KM (Percentile Bootstrap) UCL	3.038

Note: DL/2 is not a recommended method.

Result (phosphorus)

General Statistics

Number of Valid Observations	24	Number of Distinct Observations	23

Raw Statistics		Log-transformed Statistics	
Minimum	13.8	Minimum of Log Data	2.625
Maximum	284	Maximum of Log Data	5.649
Mean	132.4	Mean of log Data	4.694
Median	116	SD of log Data	0.7
SD	74.94		
Coefficient of Variation	0.566		
Skewness	0.534		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.952	Shapiro Wilk Test Statistic	0.933
Shapiro Wilk Critical Value	0.916	Shapiro Wilk Critical Value	0.916
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	158.7	95% H-UCL	191.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	230.4
95% Adjusted-CLT UCL	159.4	97.5% Chebyshev (MVUE) UCL	270.3
95% Modified-t UCL	158.9	99% Chebyshev (MVUE) UCL	348.8

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.444	Data appear Normal at 5% Significance Level
Theta Star	54.18	
nu star	117.3	
Approximate Chi Square Value (.05)	93.32	Nonparametric Statistics
Adjusted Level of Significance	0.0392	95% CLT UCL 157.6
Adjusted Chi Square Value	91.82	95% Jackknife UCL 158.7
		95% Standard Bootstrap UCL 157.6
Anderson-Darling Test Statistic	0.163	95% Bootstrap-t UCL 160.7
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL 158.9
Kolmogorov-Smirnov Test Statistic	0.0904	95% Percentile Bootstrap UCL 158
Kolmogorov-Smirnov 5% Critical Value	0.179	95% BCA Bootstrap UCL 157.7
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 199.1
		97.5% Chebyshev(Mean, Sd) UCL 228
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 284.6
95% Approximate Gamma UCL	166.5	
95% Adjusted Gamma UCL	169.2	

Potential UCL to Use	Use 95% Student's-t UCL 158.7

Result (potassium)

General Statistics

Number of Valid Data	47	Number of Detected Data	42
Number of Distinct Detected Data	29	Number of Non-Detect Data	5
		Percent Non-Detects	10.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	520	Minimum Detected	6.254
Maximum Detected	6100	Maximum Detected	8.716
Mean of Detected	2239	Mean of Detected	7.478
SD of Detected	1474	SD of Detected	0.724
Minimum Non-Detect	400	Minimum Non-Detect	5.991
Maximum Non-Detect	2000	Maximum Non-Detect	7.601

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	25
Number treated as Detected	22
Single DL Non-Detect Percentage	53.19%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.853	Shapiro Wilk Test Statistic	0.877
5% Shapiro Wilk Critical Value	0.942	5% Shapiro Wilk Critical Value	0.942
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2079	Mean	7.368
SD	1472	SD	0.783
95% DL/2 (t) UCL	2440	95% H-Stat (DL/2) UCL	2528
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1854	Mean in Log Scale	7.377
SD	1814	SD in Log Scale	0.764
95% MLE (t) UCL	2299	Mean in Original Scale	2083
95% MLE (Tiku) UCL	2422	SD in Original Scale	1469
		95% Percentile Bootstrap UCL	2450
		95% BCA Bootstrap UCL	2457

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.128	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	1052	
nu star	178.7	
A-D Test Statistic	0.767	
5% A-D Critical Value	0.758	
K-S Test Statistic	0.758	
5% K-S Critical Value	0.138	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	2084
Maximum	6100	SD	1451
Mean	2108	SE of Mean	214.7
Median	1700	95% KM (t) UCL	2445
SD	1466	95% KM (z) UCL	2437
k star	0.703	95% KM (jackknife) UCL	2444
Theta star	3000	95% KM (bootstrap t) UCL	2483
Nu star	66.05	95% KM (BCA) UCL	2480
AppChi2	48.35	95% KM (Percentile Bootstrap) UCL	2427
95% Gamma Approximate UCL	2880	95% KM (Chebyshev) UCL	3020
95% Adjusted Gamma UCL	2909	97.5% KM (Chebyshev) UCL	3425
		99% KM (Chebyshev) UCL	4220
		Potential UCLs to Use	
		95% KM (BCA) UCL	2480

Note: DL/2 is not a recommended method.

Result (pyrene)

General Statistics

Number of Valid Data	65	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	59
		Percent Non-Detects	90.77%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.27	Minimum Detected	-1.309
Maximum Detected	1.42	Maximum Detected	0.351
Mean of Detected	0.663	Mean of Detected	-0.54
SD of Detected	0.398	SD of Detected	0.546
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.831	Lilliefors Test Statistic	0.958
5% Lilliefors Critical Value	0.788	5% Lilliefors Critical Value	0.788
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.253	Mean	-1.681
SD	0.321	SD	0.629
95% DL/2 (t) UCL	0.32	95% H-Stat (DL/2) UCL	0.247
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.152
		SD in Log Scale	1.372
		Mean in Original Scale	0.112
		SD in Original Scale	0.216
		95% Percentile Bootstrap UCL	0.162
		95% BCA Bootstrap UCL	0.175

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.121	Data appear Normal at 5% Significance Level
Theta Star	0.313	
nu star	25.45	
A-D Test Statistic	0.344	
5% A-D Critical Value	0.7	
K-S Test Statistic	0.7	
5% K-S Critical Value	0.334	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.127	Mean	0.308
Maximum	2.475	SD	0.162
Mean	1.464	SE of Mean	0.0226
Median	1.528	95% KM (t) UCL	0.346
SD	0.66	95% KM (z) UCL	0.345
k star	3.167	95% KM (jackknife) UCL	0.431
Theta star	0.462	95% KM (bootstrap t) UCL	0.366
Nu star	411.8	95% KM (BCA) UCL	0.654
AppChi2	365.7	95% KM (Percentile Bootstrap) UCL	0.556
95% Gamma Approximate UCL	1.648	95% KM (Chebyshev) UCL	0.407
95% Adjusted Gamma UCL	1.653	97.5% KM (Chebyshev) UCL	0.449
		99% KM (Chebyshev) UCL	0.533
		Potential UCLs to Use	
		95% KM (t) UCL	0.346
		95% KM (Percentile Bootstrap) UCL	0.556

Note: DL/2 is not a recommended method.

Result (sec-butylbenzene)

General Statistics

Number of Valid Data	58	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	45
		Percent Non-Detects	77.59%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.051	Minimum Detected	-2.976
Maximum Detected	6.1	Maximum Detected	1.808
Mean of Detected	1.3	Mean of Detected	-0.526
SD of Detected	1.703	SD of Detected	1.41
Minimum Non-Detect	0.0052	Minimum Non-Detect	-5.259
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	48
Number treated as Detected	10
Single DL Non-Detect Percentage	82.76%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.727	Lilliefors Test Statistic	0.973
5% Lilliefors Critical Value	0.866	5% Lilliefors Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.306	Mean	-3.622
SD	0.949	SD	2.032
95% DL/2 (t) UCL	0.515	95% H-Stat (DL/2) UCL	0.269
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.728
		SD in Log Scale	2.937
		Mean in Original Scale	0.299
		SD in Original Scale	0.951
		95% Percentile Bootstrap UCL	0.535
		95% BCA Bootstrap UCL	0.638

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.635	Data appear Gamma Distributed at 5% Significance Level
Theta Star	2.048	
nu star	16.5	
A-D Test Statistic	0.308	
5% A-D Critical Value	0.77	
K-S Test Statistic	0.77	
5% K-S Critical Value	0.246	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.331
Maximum	6.1	SD	0.933
Mean	1.031	SE of Mean	0.128
Median	0.956	95% KM (t) UCL	0.544
SD	1.038	95% KM (z) UCL	0.541
k star	0.186	95% KM (jackknife) UCL	0.514
Theta star	5.539	95% KM (bootstrap t) UCL	0.761
Nu star	21.59	95% KM (BCA) UCL	0.673
AppChi2	12.03	95% KM (Percentile Bootstrap) UCL	0.598
95% Gamma Approximate UCL	1.85	95% KM (Chebyshev) UCL	0.887
95% Adjusted Gamma UCL	1.879	97.5% KM (Chebyshev) UCL	1.128
		99% KM (Chebyshev) UCL	1.6
		Potential UCLs to Use	
		95% KM (t) UCL	0.544

Note: DL/2 is not a recommended method.

Result (sodium)

General Statistics

Number of Valid Data	71	Number of Detected Data	65
Number of Distinct Detected Data	48	Number of Non-Detect Data	6
		Percent Non-Detects	8.45%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	357	Minimum Detected	5.878
Maximum Detected	4110	Maximum Detected	8.321
Mean of Detected	1110	Mean of Detected	6.841
SD of Detected	754.8	SD of Detected	0.563
Minimum Non-Detect	1000	Minimum Non-Detect	6.908
Maximum Non-Detect	2000	Maximum Non-Detect	7.601

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	65
Number treated as Detected	6
Single DL Non-Detect Percentage	91.55%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.184	Lilliefors Test Statistic	0.127
5% Lilliefors Critical Value	0.11	5% Lilliefors Critical Value	0.11
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1080	Mean	6.817
SD	732.4	SD	0.553
95% DL/2 (t) UCL	1224	95% H-Stat (DL/2) UCL	1257
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	6.823
		SD in Log Scale	0.547
		Mean in Original Scale	1083
		SD in Original Scale	730.2
		95% Percentile Bootstrap UCL	1236
		95% BCA Bootstrap UCL	1257

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.941	Data do not follow a Discernable Distribution (0.05)
Theta Star	377.5	
nu star	382.3	
A-D Test Statistic	1.636	
5% A-D Critical Value	0.758	
K-S Test Statistic	0.758	
5% K-S Critical Value	0.111	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	357	Mean	1082
Maximum	4110	SD	728.9
Mean	1104	SE of Mean	87.9
Median	880	95% KM (t) UCL	1229
SD	726.7	95% KM (z) UCL	1227
k star	3.144	95% KM (jackknife) UCL	1229
Theta star	351.3	95% KM (bootstrap t) UCL	1258
Nu star	446.4	95% KM (BCA) UCL	1231
AppChi2	398.4	95% KM (Percentile Bootstrap) UCL	1228
95% Gamma Approximate UCL	1237	95% KM (Chebyshev) UCL	1465
95% Adjusted Gamma UCL	1240	97.5% KM (Chebyshev) UCL	1631
		99% KM (Chebyshev) UCL	1957
		Potential UCLs to Use	
		95% KM (BCA) UCL	1231

Note: DL/2 is not a recommended method.

Result (titanium metal powder)

General Statistics

Number of Valid Observations	46	Number of Distinct Observations	21

Raw Statistics		Log-transformed Statistics	
Minimum	58	Minimum of Log Data	4.06
Maximum	260	Maximum of Log Data	5.561
Mean	161.3	Mean of log Data	5.016
Median	170	SD of log Data	0.392
SD	54.6		
Coefficient of Variation	0.338		
Skewness	-0.138		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.96	Shapiro Wilk Test Statistic	0.915
Shapiro Wilk Critical Value	0.945	Shapiro Wilk Critical Value	0.945
Data appear Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	174.8	95% H-UCL	181
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	204.7
95% Adjusted-CLT UCL	174.4	97.5% Chebyshev (MVUE) UCL	223
95% Modified-t UCL	174.8	99% Chebyshev (MVUE) UCL	258.8

Gamma Distribution Test		Data Distribution
k star (bias corrected)	7.12	Data appear Normal at 5% Significance Level
Theta Star	22.66	
nu star	655	
Approximate Chi Square Value (.05)	596.6	Nonparametric Statistics
Adjusted Level of Significance	0.0448	95% CLT UCL 174.5
Adjusted Chi Square Value	594.8	95% Jackknife UCL 174.8
		95% Standard Bootstrap UCL 174
Anderson-Darling Test Statistic	0.792	95% Bootstrap-t UCL 175.4
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL 174.4
Kolmogorov-Smirnov Test Statistic	0.127	95% Percentile Bootstrap UCL 174.1
Kolmogorov-Smirnov 5% Critical Value	0.131	95% BCA Bootstrap UCL 173.8
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 196.4
		97.5% Chebyshev(Mean, Sd) UCL 211.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 241.4
95% Approximate Gamma UCL	177.1	
95% Adjusted Gamma UCL	177.6	

Potential UCL to Use	Use 95% Student's-t UCL 174.8

Result (tph)

General Statistics

Number of Valid Data	157	Number of Detected Data	65
Number of Distinct Detected Data	50	Number of Non-Detect Data	92
		Percent Non-Detects	58.60%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	15	Minimum Detected	2.708
Maximum Detected	28000	Maximum Detected	10.24
Mean of Detected	2957	Mean of Detected	6.713
SD of Detected	4890	SD of Detected	1.853
Minimum Non-Detect	0.48	Minimum Non-Detect	-0.734
Maximum Non-Detect	40	Maximum Non-Detect	3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	95
Number treated as Detected	62
Single DL Non-Detect Percentage	60.51%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.29	Lilliefors Test Statistic	0.0945
5% Lilliefors Critical Value	0.11	5% Lilliefors Critical Value	0.11
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1234	Mean	4.381
SD	3452	SD	2.348
95% DL/2 (t) UCL	1690	95% H-Stat (DL/2) UCL	1030
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	3.751
		SD in Log Scale	3.125
		Mean in Original Scale	1234
		SD in Original Scale	3452
		95% Percentile Bootstrap UCL	1708
		95% BCA Bootstrap UCL	1806

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.484	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	6105	
nu star	62.96	
A-D Test Statistic	0.948	
5% A-D Critical Value	0.817	
K-S Test Statistic	0.817	
5% K-S Critical Value	0.117	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	15	Mean	1233
Maximum	28000	SD	3442
Mean	3295	SE of Mean	276.8
Median	2635	95% KM (t) UCL	1691
SD	3285	95% KM (z) UCL	1689
k star	1.001	95% KM (jackknife) UCL	1689
Theta star	3291	95% KM (bootstrap t) UCL	1879
Nu star	314.5	95% KM (BCA) UCL	1692
AppChi2	274.4	95% KM (Percentile Bootstrap) UCL	1696
95% Gamma Approximate UCL	3777	95% KM (Chebyshev) UCL	2440
95% Adjusted Gamma UCL	3782	97.5% KM (Chebyshev) UCL	2962
		99% KM (Chebyshev) UCL	3988
		Potential UCLs to Use	
		95% KM (t) UCL	1691

Note: DL/2 is not a recommended method.

Result (vanadium (fume or dust))

General Statistics

Number of Valid Data	49	Number of Detected Data	45
Number of Distinct Detected Data	25	Number of Non-Detect Data	4
		Percent Non-Detects	8.16%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	12	Minimum Detected	2.485
Maximum Detected	160	Maximum Detected	5.075
Mean of Detected	31.61	Mean of Detected	3.31
SD of Detected	23.41	SD of Detected	0.488
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	20	Maximum Non-Detect	2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	15
Number treated as Detected	34
Single DL Non-Detect Percentage	30.61%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.614	Shapiro Wilk Test Statistic	0.919
5% Shapiro Wilk Critical Value	0.945	5% Shapiro Wilk Critical Value	0.945
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	29.75	Mean	3.213
SD	23.3	SD	0.576
95% DL/2 (t) UCL	35.33	95% H-Stat (DL/2) UCL	32.66
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	24.98	Mean in Log Scale	3.247
SD	28.32	SD in Log Scale	0.521
95% MLE (t) UCL	31.76	Mean in Original Scale	30.11
95% MLE (Tiku) UCL	32.07	SD in Original Scale	23.01
		95% Percentile Bootstrap UCL	35.58
		95% BCA Bootstrap UCL	38.06

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.41	Data do not follow a Discernable Distribution (0.05)
Theta Star	9.272	
nu star	306.9	
A-D Test Statistic	1.78	
5% A-D Critical Value	0.754	
K-S Test Statistic	0.754	
5% K-S Critical Value	0.132	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	30.29
Maximum	160	SD	22.64
Mean	29.98	SE of Mean	3.273
Median	22.15	95% KM (t) UCL	35.77
SD	23.22	95% KM (z) UCL	35.67
k star	0.893	95% KM (jackknife) UCL	35.74
Theta star	33.59	95% KM (bootstrap t) UCL	39.46
Nu star	87.47	95% KM (BCA) UCL	35.94
AppChi2	66.91	95% KM (Percentile Bootstrap) UCL	36.14
95% Gamma Approximate UCL	39.19	95% KM (Chebyshev) UCL	44.55
95% Adjusted Gamma UCL	39.51	97.5% KM (Chebyshev) UCL	50.72
		99% KM (Chebyshev) UCL	62.85
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	44.55

Note: DL/2 is not a recommended method.

Result (xylenes)

General Statistics

Number of Valid Data	73	Number of Detected Data	27
Number of Distinct Detected Data	24	Number of Non-Detect Data	46
		Percent Non-Detects	63.01%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0059	Minimum Detected	-5.133
Maximum Detected	7	Maximum Detected	1.946
Mean of Detected	0.668	Mean of Detected	-2.141
SD of Detected	1.419	SD of Detected	2.032
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	57
Number treated as Detected	16
Single DL Non-Detect Percentage	78.08%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.511	Lilliefors Test Statistic	0.946
5% Lilliefors Critical Value	0.923	5% Lilliefors Critical Value	0.923
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.249	Mean	-4.438
SD	0.912	SD	2.184
95% DL/2 (t) UCL	0.427	95% H-Stat (DL/2) UCL	0.136
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.967
		SD in Log Scale	3.57
		Mean in Original Scale	0.248
		SD in Original Scale	0.912
		95% Percentile Bootstrap UCL	0.426
		95% BCA Bootstrap UCL	0.53

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.364	Data appear Lognormal at 5% Significance Level
Theta Star	1.837	
nu star	19.65	
A-D Test Statistic	1.22	
5% A-D Critical Value	0.834	
K-S Test Statistic	0.834	
5% K-S Critical Value	0.181	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.0059	Mean	0.251
Maximum	7	SD	0.905
Mean	0.658	SE of Mean	0.108
Median	0.407	95% KM (t) UCL	0.431
SD	0.925	95% KM (z) UCL	0.429
k star	0.738	95% KM (jackknife) UCL	0.428
Theta star	0.891	95% KM (bootstrap t) UCL	0.709
Nu star	107.7	95% KM (BCA) UCL	0.459
AppChi2	84.75	95% KM (Percentile Bootstrap) UCL	0.44
95% Gamma Approximate UCL	0.836	95% KM (Chebyshev) UCL	0.722
95% Adjusted Gamma UCL	0.84	97.5% KM (Chebyshev) UCL	0.925
		99% KM (Chebyshev) UCL	1.325
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	0.925

Note: DL/2 is not a recommended method.

Result (zinc)

General Statistics

Number of Valid Data	97	Number of Detected Data	95
Number of Distinct Detected Data	54	Number of Non-Detect Data	2
		Percent Non-Detects	2.06%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.61	Minimum Detected	1.284
Maximum Detected	54	Maximum Detected	3.989
Mean of Detected	19.81	Mean of Detected	2.814
SD of Detected	11.36	SD of Detected	0.618
Minimum Non-Detect	8	Minimum Non-Detect	2.079
Maximum Non-Detect	8	Maximum Non-Detect	2.079

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.113	Lilliefors Test Statistic	0.0862
5% Lilliefors Critical Value	0.0909	5% Lilliefors Critical Value	0.0909
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19.49	Mean	2.785
SD	11.46	SD	0.645
95% DL/2 (t) UCL	21.42	95% H-Stat (DL/2) UCL	22.06
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	18.91	Mean in Log Scale	2.794
SD	12.37	SD in Log Scale	0.627
95% MLE (t) UCL	20.99	Mean in Original Scale	19.53
95% MLE (Tiku) UCL	20.99	SD in Original Scale	11.4
		95% Percentile Bootstrap UCL	21.55
		95% BCA Bootstrap UCL	21.61

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.97	Data appear Gamma Distributed at 5% Significance Level
Theta Star	6.671	
nu star	564.3	
A-D Test Statistic	0.254	
5% A-D Critical Value	0.759	
K-S Test Statistic	0.759	
5% K-S Critical Value	0.0925	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	19.52
Maximum	54	SD	11.37
Mean	19.45	SE of Mean	1.16
Median	16.4	95% KM (t) UCL	21.44
SD	11.52	95% KM (z) UCL	21.42
k star	1.328	95% KM (jackknife) UCL	21.44
Theta star	14.65	95% KM (bootstrap t) UCL	21.67
Nu star	257.6	95% KM (BCA) UCL	21.39
AppChi2	221.4	95% KM (Percentile Bootstrap) UCL	21.39
95% Gamma Approximate UCL	22.63	95% KM (Chebyshev) UCL	24.57
95% Adjusted Gamma UCL	22.68	97.5% KM (Chebyshev) UCL	26.76
		99% KM (Chebyshev) UCL	31.06
		Potential UCLs to Use	
		95% KM (BCA) UCL	21.39

Note: DL/2 is not a recommended method.

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result (1,1,1-trichloroethane)

General Statistics

Number of Valid Data	78	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	70
		Percent Non-Detects	89.74%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00118	Minimum Detected	-6.742
Maximum Detected	0.00183	Maximum Detected	-6.303
Mean of Detected	0.00153	Mean of Detected	-6.494
SD of Detected	0.000234	SD of Detected	0.156
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.94
5% Lilliefors Critical Value	0.818

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.000606
SD	0.000322
95% DL/2 (t) UCL	0.000666
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.943
5% Lilliefors Critical Value	0.818

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.487
SD	0.341
95% H-Stat (DL/2) UCL	0.000604
Log ROS Method	
Mean in Log Scale	-7.267
SD in Log Scale	0.441
Mean in Original Scale	0.000768
SD in Original Scale	0.00035
95% Percentile Bootstrap UCL	0.000834
95% BCA Bootstrap UCL	0.000841

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	30.03
Theta Star	5.09E-05
nu star	480.5
A-D Test Statistic	0.281
5% A-D Critical Value	0.715
K-S Test Statistic	0.715
5% K-S Critical Value	0.293

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00112
Maximum	0.0027
Mean	0.0022
Median	0.00232
SD	0.000418
k star	23.14
Theta star	9.52E-05
Nu star	3610
AppChi2	3472
95% Gamma Approximate UCL	0.00229
95% Adjusted Gamma UCL	0.00229

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00122
SD	0.000127
SE of Mean	1.54E-05
95% KM (t) UCL	0.00124
95% KM (z) UCL	0.00124
95% KM (jackknife) UCL	0.00131
95% KM (bootstrap t) UCL	0.00124
95% KM (BCA) UCL	0.00145
95% KM (Percentile Bootstrap) UCL	0.00142
95% KM (Chebyshev) UCL	0.00128
97.5% KM (Chebyshev) UCL	0.00131
99% KM (Chebyshev) UCL	0.00137

Potential UCLs to Use

95% KM (t) UCL	0.00124
95% KM (Percentile Bootstrap) UCL	0.00142

Result (1,1-dichloroethane)

General Statistics

Number of Valid Data	78	Number of Detected Data	50
Number of Distinct Detected Data	49	Number of Non-Detect Data	28
		Percent Non-Detects	35.90%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00104	Minimum Detected	-6.869
Maximum Detected	0.125	Maximum Detected	-2.079
Mean of Detected	0.0311	Mean of Detected	-4.071
SD of Detected	0.0292	SD of Detected	1.311
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.853	Lilliefors Test Statistic	0.908
5% Lilliefors Critical Value	0.947	5% Lilliefors Critical Value	0.947
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0201	Mean	-5.338
SD	0.0276	SD	2
95% DL/2 (t) UCL	0.0253	95% H-Stat (DL/2) UCL	0.0251
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0105	Mean in Log Scale	-5.138
SD	0.0382	SD in Log Scale	1.858
95% MLE (t) UCL	0.0177	Mean in Original Scale	0.0204
95% MLE (Tiku) UCL	0.0184	SD in Original Scale	0.0274
		95% Percentile Bootstrap UCL	0.0254
		95% BCA Bootstrap UCL	0.0257

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.92	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	0.0338	
nu star	91.99	
A-D Test Statistic	0.638	
5% A-D Critical Value	0.782	
K-S Test Statistic	0.782	
5% K-S Critical Value	0.129	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.125
Mean	0.0244
Median	0.0206
SD	0.026
k star	0.316
Theta star	0.0771
Nu star	49.35
AppChi2	34.22
95% Gamma Approximate UCL	0.0352
95% Adjusted Gamma UCL	0.0354

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0203
SD	0.0273
SE of Mean	0.00312
95% KM (t) UCL	0.0255
95% KM (z) UCL	0.0255
95% KM (jackknife) UCL	0.0255
95% KM (bootstrap t) UCL	0.0266
95% KM (BCA) UCL	0.0263
95% KM (Percentile Bootstrap) UCL	0.0257
95% KM (Chebyshev) UCL	0.0339
97.5% KM (Chebyshev) UCL	0.0398
99% KM (Chebyshev) UCL	0.0514
Potential UCLs to Use	
95% KM (BCA) UCL	0.0263

Result (1,2,4-trimethylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	19
Number of Distinct Detected Data	19	Number of Non-Detect Data	59
		Percent Non-Detects	75.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00113	Minimum Detected	-6.786
Maximum Detected	0.0955	Maximum Detected	-2.349
Mean of Detected	0.0318	Mean of Detected	-3.965
SD of Detected	0.0274	SD of Detected	1.253
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.899	Lilliefors Test Statistic	0.903
5% Lilliefors Critical Value	0.901	5% Lilliefors Critical Value	0.901
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00811	Mean	-6.715
SD	0.0189	SD	1.684
95% DL/2 (t) UCL	0.0117	95% H-Stat (DL/2) UCL	0.00557
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-7.147
		SD in Log Scale	2.462
		Mean in Original Scale	0.00836
		SD in Original Scale	0.0188
		95% Percentile Bootstrap UCL	0.0118
		95% BCA Bootstrap UCL	0.0132

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.967	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.0328	
nu star	36.75	
A-D Test Statistic	0.221	
5% A-D Critical Value	0.767	
K-S Test Statistic	0.767	
5% K-S Critical Value	0.204	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.00859
Maximum	0.269	SD	0.0186
Mean	0.104	SE of Mean	0.00216
Median	0.0857	95% KM (t) UCL	0.0122
SD	0.0837	95% KM (z) UCL	0.0121
k star	0.533	95% KM (jackknife) UCL	0.0121
Theta star	0.196	95% KM (bootstrap t) UCL	0.0131
Nu star	83.09	95% KM (BCA) UCL	0.0163
AppChi2	63.08	95% KM (Percentile Bootstrap) UCL	0.0144
95% Gamma Approximate UCL	0.138	95% KM (Chebyshev) UCL	0.018
95% Adjusted Gamma UCL	0.138	97.5% KM (Chebyshev) UCL	0.0221
		99% KM (Chebyshev) UCL	0.0301
		Potential UCLs to Use	
		95% KM (t) UCL	0.0122

Note: DL/2 is not a recommended method.

Result (1,3,5-trimethylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	68
		Percent Non-Detects	87.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00144	Minimum Detected	-6.543
Maximum Detected	0.0276	Maximum Detected	-3.59
Mean of Detected	0.0109	Mean of Detected	-4.799
SD of Detected	0.00819	SD of Detected	0.855
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.901
5% Lilliefors Critical Value	0.842

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.959
5% Lilliefors Critical Value	0.842

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00184
SD	0.00449
95% DL/2 (t) UCL	0.00269
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.242
SD	0.987
95% H-Stat (DL/2) UCL	0.00115
Log ROS Method	
Mean in Log Scale	-8.432
SD in Log Scale	2.208
Mean in Original Scale	0.00176
SD in Original Scale	0.00455
95% Percentile Bootstrap UCL	0.00268
95% BCA Bootstrap UCL	0.00294

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.403
Theta Star	0.0078
nu star	28.06
A-D Test Statistic	0.212
5% A-D Critical Value	0.736
K-S Test Statistic	0.736
5% K-S Critical Value	0.27

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.105
Mean	0.0527
Median	0.0542
SD	0.0323
k star	1.044
Theta star	0.0505
Nu star	162.9
AppChi2	134.4
95% Gamma Approximate UCL	0.0639
95% Adjusted Gamma UCL	0.0641

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00266
SD	0.00422
SE of Mean	0.000504
95% KM (t) UCL	0.0035
95% KM (z) UCL	0.00349
95% KM (jackknife) UCL	0.00451
95% KM (bootstrap t) UCL	0.00378
95% KM (BCA) UCL	0.00765
95% KM (Percentile Bootstrap) UCL	0.00669
95% KM (Chebyshev) UCL	0.00486
97.5% KM (Chebyshev) UCL	0.00581
99% KM (Chebyshev) UCL	0.00768

Potential UCLs to Use

95% KM (t) UCL	0.0035
95% KM (Percentile Bootstrap) UCL	0.00669

Result (1-methylnaphthalene)

General Statistics

Number of Valid Data	78	Number of Detected Data	24
Number of Distinct Detected Data	24	Number of Non-Detect Data	54
		Percent Non-Detects	69.23%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00564	Minimum Detected	-5.178
Maximum Detected	26.6	Maximum Detected	3.281
Mean of Detected	1.69	Mean of Detected	-1.717
SD of Detected	5.61	SD of Detected	1.838
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	76
Number treated as Detected	2
Single DL Non-Detect Percentage	97.44%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.325	Lilliefors Test Statistic	0.915
5% Lilliefors Critical Value	0.916	5% Lilliefors Critical Value	0.916
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.778	Mean	-3.947
SD	3.214	SD	2.732
95% DL/2 (t) UCL	1.384	95% H-Stat (DL/2) UCL	2.04
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-5.37
		SD in Log Scale	3.271
		Mean in Original Scale	0.525
		SD in Original Scale	3.164
		95% Percentile Bootstrap UCL	1.21
		95% BCA Bootstrap UCL	1.789

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.296	Data do not follow a Discernable Distribution (0.05)
Theta Star	5.71	
nu star	14.21	
A-D Test Statistic	3.337	
5% A-D Critical Value	0.85	
K-S Test Statistic	0.85	
5% K-S Critical Value	0.193	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.531
Maximum	281	SD	3.143
Mean	22.8	SE of Mean	0.364
Median	1.472	95% KM (t) UCL	1.136
SD	44.32	95% KM (z) UCL	1.129
k star	0.142	95% KM (jackknife) UCL	1.124
Theta star	160.7	95% KM (bootstrap t) UCL	9.21
Nu star	22.13	95% KM (BCA) UCL	1.217
AppChi2	12.44	95% KM (Percentile Bootstrap) UCL	1.196
95% Gamma Approximate UCL	40.57	95% KM (Chebyshev) UCL	2.116
95% Adjusted Gamma UCL	41.02	97.5% KM (Chebyshev) UCL	2.802
		99% KM (Chebyshev) UCL	4.149
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	2.116

Note: DL/2 is not a recommended method.

Result (2-methylnaphthalene)

General Statistics

Number of Valid Data	78	Number of Detected Data	23
Number of Distinct Detected Data	23	Number of Non-Detect Data	55
		Percent Non-Detects	70.51%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00746	Minimum Detected	-4.898
Maximum Detected	26.3	Maximum Detected	3.27
Mean of Detected	1.882	Mean of Detected	-1.652
SD of Detected	5.839	SD of Detected	1.918
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	76
Number treated as Detected	2
Single DL Non-Detect Percentage	97.44%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.353
5% Lilliefors Critical Value	0.914

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.929
5% Lilliefors Critical Value	0.914

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.845
SD	3.287
95% DL/2 (t) UCL	1.465
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-3.894
SD	2.798
95% H-Stat (DL/2) UCL	2.992
Log ROS Method	
Mean in Log Scale	-5.605
SD in Log Scale	3.465
Mean in Original Scale	0.561
SD in Original Scale	3.237
95% Percentile Bootstrap UCL	1.236
95% BCA Bootstrap UCL	1.742

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.291
Theta Star	6.46
nu star	13.4
A-D Test Statistic	2.917
5% A-D Critical Value	0.848
K-S Test Statistic	0.848
5% K-S Critical Value	0.197

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	373.4
Mean	30.9
Median	2.88
SD	59.88
k star	0.14
Theta star	220.1
Nu star	21.9
AppChi2	12.26
95% Gamma Approximate UCL	55.18
95% Adjusted Gamma UCL	55.8

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.569
SD	3.216
SE of Mean	0.372
95% KM (t) UCL	1.189
95% KM (z) UCL	1.181
95% KM (jackknife) UCL	1.177
95% KM (bootstrap t) UCL	9.329
95% KM (BCA) UCL	1.334
95% KM (Percentile Bootstrap) UCL	1.247
95% KM (Chebyshev) UCL	2.192
97.5% KM (Chebyshev) UCL	2.894
99% KM (Chebyshev) UCL	4.274

Potential UCLs to Use

95% KM (Chebyshev) UCL	2.192

Result (acenaphthene)

General Statistics

Number of Valid Data	78	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	65
		Percent Non-Detects	83.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00571	Minimum Detected	-5.166
Maximum Detected	0.76	Maximum Detected	-0.274
Mean of Detected	0.0811	Mean of Detected	-3.78
SD of Detected	0.205	SD of Detected	1.372
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.391	Lilliefors Test Statistic	0.84
5% Lilliefors Critical Value	0.866	5% Lilliefors Critical Value	0.866
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.528	Mean	-4.185
SD	1.012	SD	2.786
95% DL/2 (t) UCL	0.719	95% H-Stat (DL/2) UCL	3.889
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-8.018
		SD in Log Scale	2.963
		Mean in Original Scale	0.0148
		SD in Original Scale	0.0864
		95% Percentile Bootstrap UCL	0.034
		95% BCA Bootstrap UCL	0.0526

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.437	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.186	
nu star	11.35	
A-D Test Statistic	1.698	
5% A-D Critical Value	0.79	
K-S Test Statistic	0.79	
5% K-S Critical Value	0.25	
Data not Gamma Distributed at 5% Significance Level		
Assuming Gamma Distribution		
Gamma ROS Statistics using Extrapolated Data		
Minimum	1E-09	
Maximum	12.82	
Mean	2.468	
Median	1.237	
SD	2.973	
k star	0.254	
Theta star	9.732	
Nu star	39.55	
AppChi2	26.15	
95% Gamma Approximate UCL	3.733	
95% Adjusted Gamma UCL	3.762	

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0215
SD	0.0952
SE of Mean	0.0126
95% KM (t) UCL	0.0425
95% KM (z) UCL	0.0422
95% KM (jackknife) UCL	0.0411
95% KM (bootstrap t) UCL	0.181
95% KM (BCA) UCL	0.0544
95% KM (Percentile Bootstrap) UCL	0.046
95% KM (Chebyshev) UCL	0.0764
97.5% KM (Chebyshev) UCL	0.1
99% KM (Chebyshev) UCL	0.147
Potential UCLs to Use	
95% KM (BCA) UCL	0.0544

Result (aluminum)

General Statistics

Number of Valid Data	52	Number of Detected Data	13
Number of Distinct Detected Data	12	Number of Non-Detect Data	39
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.055	Minimum Detected	-2.9
Maximum Detected	49.6	Maximum Detected	3.904
Mean of Detected	4.19	Mean of Detected	-1.322
SD of Detected	13.67	SD of Detected	1.902
Minimum Non-Detect	0.03	Minimum Non-Detect	-3.507
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	42
Number treated as Detected	10
Single DL Non-Detect Percentage	80.77%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.342	Lilliefors Test Statistic	0.739
5% Lilliefors Critical Value	0.866	5% Lilliefors Critical Value	0.866
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.069	Mean	-3.133
SD	6.874	SD	1.493
95% DL/2 (t) UCL	2.666	95% H-Stat (DL/2) UCL	0.194
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.135
		SD in Log Scale	3.718
		Mean in Original Scale	1.05
		SD in Original Scale	6.877
		95% Percentile Bootstrap UCL	2.942
		95% BCA Bootstrap UCL	3.962

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.249	Data do not follow a Discernable Distribution (0.05)
Theta Star	16.84	
nu star	6.468	
A-D Test Statistic	2.703	
5% A-D Critical Value	0.846	
K-S Test Statistic	0.846	
5% K-S Critical Value	0.258	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	1.089
Maximum	537.9	SD	6.805
Mean	73.37	SE of Mean	0.982
Median	5.72	95% KM (t) UCL	2.735
SD	123.7	95% KM (z) UCL	2.705
k star	0.123	95% KM (jackknife) UCL	2.683
Theta star	597.8	95% KM (bootstrap t) UCL	114.8
Nu star	12.76	95% KM (BCA) UCL	3.001
AppChi2	5.734	95% KM (Percentile Bootstrap) UCL	2.987
95% Gamma Approximate UCL	163.3	95% KM (Chebyshev) UCL	5.37
95% Adjusted Gamma UCL	167.2	97.5% KM (Chebyshev) UCL	7.223
		99% KM (Chebyshev) UCL	10.86
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	5.37

Note: DL/2 is not a recommended method.

Result (ammonia)

General Statistics

Number of Valid Data	61	Number of Detected Data	9
Number of Distinct Detected Data	6	Number of Non-Detect Data	52
		Percent Non-Detects	85.25%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.01	Minimum Detected	0.00995
Maximum Detected	1.85	Maximum Detected	0.615
Mean of Detected	1.207	Mean of Detected	0.167
SD of Detected	0.282	SD of Detected	0.208
Minimum Non-Detect	1	Minimum Non-Detect	0
Maximum Non-Detect	1	Maximum Non-Detect	0

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.753	Lilliefors Test Statistic	0.792
5% Lilliefors Critical Value	0.829	5% Lilliefors Critical Value	0.829
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.604	Mean	-0.566
SD	0.273	SD	0.317
95% DL/2 (t) UCL	0.663	95% H-Stat (DL/2) UCL	0.623
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.502	Mean in Log Scale	-0.701
SD	0.465	SD in Log Scale	0.55
95% MLE (t) UCL	0.602	Mean in Original Scale	0.576
95% MLE (Tiku) UCL	0.813	SD in Original Scale	0.333
		95% Percentile Bootstrap UCL	0.647
		95% BCA Bootstrap UCL	0.652

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	16.25	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.0742		
nu star	292.5		
A-D Test Statistic	0.887	**Nonparametric Statistics**	
5% A-D Critical Value	0.721	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.721	Mean	1.039
5% K-S Critical Value	0.279	SD	0.124
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0168
		95% KM (t) UCL	1.067
Assuming Gamma Distribution		95% KM (z) UCL	1.067
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.066
Minimum	0.82	95% KM (bootstrap t) UCL	1.1
Maximum	2.127	95% KM (BCA) UCL	1.083
Mean	1.673	95% KM (Percentile Bootstrap) UCL	1.077
Median	1.778	95% KM (Chebyshev) UCL	1.112
SD	0.365	97.5% KM (Chebyshev) UCL	1.144
k star	17.56	99% KM (Chebyshev) UCL	1.206
Theta star	0.0953		
Nu star	2142	**Potential UCLs to Use**	
AppChi2	2035	95% KM (t) UCL	1.067
95% Gamma Approximate UCL	1.76	95% KM (% Bootstrap) UCL	1.077
95% Adjusted Gamma UCL	1.763		

Note: DL/2 is not a recommended method.

Result (anthracene)

General Statistics

Number of Valid Data	78	Number of Detected Data	9
Number of Distinct Detected Data	8	Number of Non-Detect Data	69
		Percent Non-Detects	88.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00754	Minimum Detected	-4.888
Maximum Detected	0.316	Maximum Detected	-1.152
Mean of Detected	0.108	Mean of Detected	-2.915
SD of Detected	0.105	SD of Detected	1.434
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.869	Lilliefors Test Statistic	0.87
5% Lilliefors Critical Value	0.829	5% Lilliefors Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.623	Mean	-3.933
SD	1.073	SD	2.973
95% DL/2 (t) UCL	0.825	95% H-Stat (DL/2) UCL	9.602
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-8.219
		SD in Log Scale	3.293
		Mean in Original Scale	0.0147
		SD in Original Scale	0.049
		95% Percentile Bootstrap UCL	0.0247
		95% BCA Bootstrap UCL	0.0272

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.643	Data appear Normal at 5% Significance Level
Theta Star	0.168	
nu star	11.58	
A-D Test Statistic	0.548	
5% A-D Critical Value	0.748	
K-S Test Statistic	0.748	
5% K-S Critical Value	0.288	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0229
Maximum	5.125	SD	0.0529
Mean	1.587	SE of Mean	0.0073
Median	1.288	95% KM (t) UCL	0.035
SD	1.406	95% KM (z) UCL	0.0349
k star	0.584	95% KM (jackknife) UCL	0.0337
Theta star	2.719	95% KM (bootstrap t) UCL	0.0416
Nu star	91.09	95% KM (BCA) UCL	0.055
AppChi2	70.09	95% KM (Percentile Bootstrap) UCL	0.0389
95% Gamma Approximate UCL	2.063	95% KM (Chebyshev) UCL	0.0547
95% Adjusted Gamma UCL	2.074	97.5% KM (Chebyshev) UCL	0.0685
		99% KM (Chebyshev) UCL	0.0955
		Potential UCLs to Use	
		95% KM (t) UCL	0.035
		95% KM (Percentile Bootstrap) UCL	0.0389

Note: DL/2 is not a recommended method.

Result (arsenic)

General Statistics

Number of Valid Data	70	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	60
		Percent Non-Detects	85.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.011	Minimum Detected	-4.51
Maximum Detected	0.364	Maximum Detected	-1.011
Mean of Detected	0.127	Mean of Detected	-2.548
SD of Detected	0.129	SD of Detected	1.096
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	60
Number treated as Detected	10
Single DL Non-Detect Percentage	85.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.756	Lilliefors Test Statistic	0.953
5% Lilliefors Critical Value	0.842	5% Lilliefors Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0211	Mean	-5.242
SD	0.0636	SD	1.219
95% DL/2 (t) UCL	0.0338	95% H-Stat (DL/2) UCL	0.0116
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.981
		SD in Log Scale	2.736
		Mean in Original Scale	0.0199
		SD in Original Scale	0.064
		95% Percentile Bootstrap UCL	0.0332
		95% BCA Bootstrap UCL	0.0382

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.893	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.142	
nu star	17.85	
A-D Test Statistic	0.37	
5% A-D Critical Value	0.745	
K-S Test Statistic	0.745	
5% K-S Critical Value	0.273	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0275
Maximum	1.363	SD	0.0614
Mean	0.559	SE of Mean	0.00773
Median	0.491	95% KM (t) UCL	0.0404
SD	0.43	95% KM (z) UCL	0.0402
k star	0.491	95% KM (jackknife) UCL	0.0384
Theta star	1.138	95% KM (bootstrap t) UCL	0.0524
Nu star	68.79	95% KM (BCA) UCL	0.0862
AppChi2	50.7	95% KM (Percentile Bootstrap) UCL	0.0668
95% Gamma Approximate UCL	0.759	95% KM (Chebyshev) UCL	0.0612
95% Adjusted Gamma UCL	0.764	97.5% KM (Chebyshev) UCL	0.0758
		99% KM (Chebyshev) UCL	0.104
		Potential UCLs to Use	
		95% KM (t) UCL	0.0404

Note: DL/2 is not a recommended method.

Result (barium)

General Statistics

Number of Valid Data	70	Number of Detected Data	50
Number of Distinct Detected Data	28	Number of Non-Detect Data	20
		Percent Non-Detects	28.57%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.008	Minimum Detected	-4.828
Maximum Detected	2.81	Maximum Detected	1.033
Mean of Detected	0.102	Mean of Detected	-3.63
SD of Detected	0.404	SD of Detected	1.105
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	66
Number treated as Detected	4
Single DL Non-Detect Percentage	94.29%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.241	Lilliefors Test Statistic	0.748
5% Lilliefors Critical Value	0.947	5% Lilliefors Critical Value	0.947
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0815	Mean	-3.745
SD	0.342	SD	1.132
95% DL/2 (t) UCL	0.15	95% H-Stat (DL/2) UCL	0.0733
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.977
		SD in Log Scale	1.233
		Mean in Original Scale	0.0772
		SD in Original Scale	0.343
		95% Percentile Bootstrap UCL	0.158
		95% BCA Bootstrap UCL	0.208

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.46	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.222	
nu star	45.96	
A-D Test Statistic	9.467	
5% A-D Critical Value	0.82	
K-S Test Statistic	0.82	
5% K-S Critical Value	0.133	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0774
Maximum	2.81	SD	0.34
Mean	0.0979	SE of Mean	0.0411
Median	0.018	95% KM (t) UCL	0.146
SD	0.351	95% KM (z) UCL	0.145
k star	0.177	95% KM (jackknife) UCL	0.145
Theta star	0.553	95% KM (bootstrap t) UCL	0.438
Nu star	24.77	95% KM (BCA) UCL	0.163
AppChi2	14.43	95% KM (Percentile Bootstrap) UCL	0.156
95% Gamma Approximate UCL	0.168	95% KM (Chebyshev) UCL	0.256
95% Adjusted Gamma UCL	0.17	97.5% KM (Chebyshev) UCL	0.334
		99% KM (Chebyshev) UCL	0.486
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	0.256

Note: DL/2 is not a recommended method.

Result (benzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	32
Number of Distinct Detected Data	31	Number of Non-Detect Data	46
		Percent Non-Detects	58.97%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00111	Minimum Detected	-6.803
Maximum Detected	0.0602	Maximum Detected	-2.81
Mean of Detected	0.0207	Mean of Detected	-4.493
SD of Detected	0.0182	SD of Detected	1.305
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.878	Lilliefors Test Statistic	0.884
5% Lilliefors Critical Value	0.93	5% Lilliefors Critical Value	0.93
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00881	Mean	-6.326
SD	0.0153	SD	1.747
95% DL/2 (t) UCL	0.0117	95% H-Stat (DL/2) UCL	0.00858
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-6.597
		SD in Log Scale	2.217
		Mean in Original Scale	0.00887
		SD in Original Scale	0.0152
		95% Percentile Bootstrap UCL	0.0118
		95% BCA Bootstrap UCL	0.0119

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.874	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.0237	
nu star	55.9	
A-D Test Statistic	1.13	
5% A-D Critical Value	0.778	
K-S Test Statistic	0.778	
5% K-S Critical Value	0.16	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.00917
Maximum	0.0817	SD	0.015
Mean	0.0294	SE of Mean	0.00172
Median	0.0267	95% KM (t) UCL	0.012
SD	0.0242	95% KM (z) UCL	0.012
k star	0.423	95% KM (jackknife) UCL	0.0118
Theta star	0.0694	95% KM (bootstrap t) UCL	0.0126
Nu star	65.96	95% KM (BCA) UCL	0.0123
AppChi2	48.28	95% KM (Percentile Bootstrap) UCL	0.0121
95% Gamma Approximate UCL	0.0401	95% KM (Chebyshev) UCL	0.0167
95% Adjusted Gamma UCL	0.0404	97.5% KM (Chebyshev) UCL	0.0199
		99% KM (Chebyshev) UCL	0.0263
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.0123

Note: DL/2 is not a recommended method.

Result (beryllium)

General Statistics

Number of Valid Data	69	Number of Detected Data	11
Number of Distinct Detected Data	4	Number of Non-Detect Data	58
		Percent Non-Detects	84.06%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.003	Minimum Detected	-5.809
Maximum Detected	0.009	Maximum Detected	-4.711
Mean of Detected	0.00509	Mean of Detected	-5.334
SD of Detected	0.00176	SD of Detected	0.348
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.0025	Maximum Non-Detect	-5.991

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	58
Number treated as Detected	11
Single DL Non-Detect Percentage	84.06%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.867
5% Lilliefors Critical Value	0.85

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.87
5% Lilliefors Critical Value	0.85

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00183
SD	0.00158
95% DL/2 (t) UCL	0.00215
Maximum Likelihood Estimate(MLE) Method	
Mean	0.00542
SD	0.00168
95% MLE (t) UCL	0.00576
95% MLE (Tiku) UCL	0.00625

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-6.495
SD	0.531
95% H-Stat (DL/2) UCL	0.00179
Log ROS Method	
Mean in Log Scale	-6.61
SD in Log Scale	0.82
Mean in Original Scale	0.00188
SD in Original Scale	0.0017
95% Percentile Bootstrap UCL	0.0022
95% BCA Bootstrap UCL	0.00227

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	6.892
Theta Star	0.000739
nu star	151.6
A-D Test Statistic	0.695
5% A-D Critical Value	0.73
K-S Test Statistic	0.73
5% K-S Critical Value	0.255

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.003
Maximum	0.009
Mean	0.00491
Median	0.00484
SD	0.000748
k star	44.73
Theta star	0.00011
Nu star	6172
AppChi2	5991
95% Gamma Approximate UCL	0.00506
95% Adjusted Gamma UCL	0.00506

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00333
SD	0.00102
SE of Mean	0.000128
95% KM (t) UCL	0.00355
95% KM (z) UCL	0.00354
95% KM (jackknife) UCL	0.00354
95% KM (bootstrap t) UCL	0.00364
95% KM (BCA) UCL	0.00503
95% KM (Percentile Bootstrap) UCL	0.00367
95% KM (Chebyshev) UCL	0.00389
97.5% KM (Chebyshev) UCL	0.00414
99% KM (Chebyshev) UCL	0.00461

Potential UCLs to Use

95% KM (t) UCL	0.00355
95% KM (Percentile Bootstrap) UCL	0.00367

Result (boron)

General Statistics

Number of Valid Observations	52	Number of Distinct Observations	51

Raw Statistics		Log-transformed Statistics	
Minimum	1.76	Minimum of Log Data	0.565
Maximum	9.61	Maximum of Log Data	2.263
Mean	5.702	Mean of log Data	1.638
Median	6.185	SD of log Data	0.487
SD	2.327		
Coefficient of Variation	0.408		
Skewness	-0.149		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.124	Lilliefors Test Statistic	0.17
Lilliefors Critical Value	0.123	Lilliefors Critical Value	0.123
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.243	95% H-UCL	6.583
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.566
95% Adjusted-CLT UCL	6.226	97.5% Chebyshev (MVUE) UCL	8.338
95% Modified-t UCL	6.241	99% Chebyshev (MVUE) UCL	9.855

Gamma Distribution Test		Data Distribution
k star (bias corrected)	4.762	Data do not follow a Discernable Distribution (0.05)
Theta Star	1.197	
nu star	495.3	
Approximate Chi Square Value (.05)	444.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0454	95% CLT UCL 6.233
Adjusted Chi Square Value	443.3	95% Jackknife UCL 6.243
		95% Standard Bootstrap UCL 6.241
Anderson-Darling Test Statistic	1.373	95% Bootstrap-t UCL 6.247
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL 6.196
Kolmogorov-Smirnov Test Statistic	0.143	95% Percentile Bootstrap UCL 6.249
Kolmogorov-Smirnov 5% Critical Value	0.123	95% BCA Bootstrap UCL 6.192
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.109
		97.5% Chebyshev(Mean, Sd) UCL 7.717
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.913
95% Approximate Gamma UCL	6.351	
95% Adjusted Gamma UCL	6.37	

Potential UCL to Use	
Use 95% Student's-t UCL	6.243
or 95% Modified-t UCL	6.241

Result (bromide)

General Statistics

Number of Valid Data	70	Number of Detected Data	34
Number of Distinct Detected Data	28	Number of Non-Detect Data	36
		Percent Non-Detects	51.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.52	Minimum Detected	-0.654
Maximum Detected	3.86	Maximum Detected	1.351
Mean of Detected	1.375	Mean of Detected	0.0905
SD of Detected	1.099	SD of Detected	0.627
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	1	Maximum Non-Detect	0

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	59
Number treated as Detected	11
Single DL Non-Detect Percentage	84.29%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.644	Lilliefors Test Statistic	0.764
5% Lilliefors Critical Value	0.933	5% Lilliefors Critical Value	0.933
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.755	Mean	-0.992
SD	0.979	SD	1.225
95% DL/2 (t) UCL	0.95	95% H-Stat (DL/2) UCL	0.737
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.664
		SD in Log Scale	0.95
		Mean in Original Scale	0.819
		SD in Original Scale	0.943
		95% Percentile Bootstrap UCL	1.009
		95% BCA Bootstrap UCL	1.028

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.161	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.636	
nu star	147	
A-D Test Statistic	4.315	
5% A-D Critical Value	0.757	
K-S Test Statistic	0.757	
5% K-S Critical Value	0.153	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.944
Maximum	3.86	SD	0.864
Mean	1.372	SE of Mean	0.105
Median	1.043	95% KM (t) UCL	1.12
SD	0.917	95% KM (z) UCL	1.117
k star	0.765	95% KM (jackknife) UCL	1.092
Theta star	1.794	95% KM (bootstrap t) UCL	1.161
Nu star	107.1	95% KM (BCA) UCL	1.192
AppChi2	84.21	95% KM (Percentile Bootstrap) UCL	1.156
95% Gamma Approximate UCL	1.745	95% KM (Chebyshev) UCL	1.402
95% Adjusted Gamma UCL	1.754	97.5% KM (Chebyshev) UCL	1.6
		99% KM (Chebyshev) UCL	1.989
		Potential UCLs to Use	
		95% KM (t) UCL	1.12
		95% KM (% Bootstrap) UCL	1.156

Note: DL/2 is not a recommended method.

Result (cadmium)

General Statistics

Number of Valid Data	78	Number of Detected Data	9
Number of Distinct Detected Data	5	Number of Non-Detect Data	69
		Percent Non-Detects	88.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.001	Minimum Detected	-6.908
Maximum Detected	0.007	Maximum Detected	-4.962
Mean of Detected	0.00322	Mean of Detected	-5.87
SD of Detected	0.00179	SD of Detected	0.557
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	76
Number treated as Detected	2
Single DL Non-Detect Percentage	97.44%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.866
5% Lilliefors Critical Value	0.829

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.935
5% Lilliefors Critical Value	0.829

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00118
SD	0.00116
95% DL/2 (t) UCL	0.0014
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.059
SD	0.732
95% H-Stat (DL/2) UCL	0.00128
Log ROS Method	
Mean in Log Scale	-7.907
SD in Log Scale	1.185
Mean in Original Scale	0.000745
SD in Original Scale	0.00112
95% Percentile Bootstrap UCL	0.00096
95% BCA Bootstrap UCL	0.00103

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	2.691
Theta Star	0.0012
nu star	48.45
A-D Test Statistic	0.446
5% A-D Critical Value	0.725
K-S Test Statistic	0.725
5% K-S Critical Value	0.28

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.000541
Maximum	0.0126
Mean	0.00767
Median	0.00818
SD	0.00334
k star	3.435
Theta star	0.00223
Nu star	535.8
AppChi2	483.1
95% Gamma Approximate UCL	0.0085
95% Adjusted Gamma UCL	0.00852

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00128
SD	0.000927
SE of Mean	0.000114
95% KM (t) UCL	0.00147
95% KM (z) UCL	0.00147
95% KM (jackknife) UCL	0.00188
95% KM (bootstrap t) UCL	0.00149
95% KM (BCA) UCL	0.00308
95% KM (Percentile Bootstrap) UCL	0.00238
95% KM (Chebyshev) UCL	0.00177
97.5% KM (Chebyshev) UCL	0.00199
99% KM (Chebyshev) UCL	0.00241

Potential UCLs to Use

95% KM (t) UCL	0.00147
95% KM (Percentile Bootstrap) UCL	0.00238

Result (calcium metal)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		Log-transformed Statistics	
Minimum	115	Minimum of Log Data	4.745
Maximum	607	Maximum of Log Data	6.409
Mean	382.2	Mean of log Data	5.794
Median	455	SD of log Data	0.613
SD	193.1		
Coefficient of Variation	0.505		
Skewness	-0.215		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.853	Shapiro Wilk Test Statistic	0.845
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	482.3	95% H-UCL	604.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	699.6
95% Adjusted-CLT UCL	470.2	97.5% Chebyshev (MVUE) UCL	833.9
95% Modified-t UCL	481.7	99% Chebyshev (MVUE) UCL	1098

Gamma Distribution Test		Data Distribution
k star (bias corrected)	2.641	Data do not follow a Discernable Distribution (0.05)
Theta Star	144.7	
nu star	63.39	
Approximate Chi Square Value (.05)	46.08	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 473.9
Adjusted Chi Square Value	43.83	95% Jackknife UCL 482.3
		95% Standard Bootstrap UCL 469
Anderson-Darling Test Statistic	0.879	95% Bootstrap-t UCL 476.5
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL 462.6
Kolmogorov-Smirnov Test Statistic	0.249	95% Percentile Bootstrap UCL 467.4
Kolmogorov-Smirnov 5% Critical Value	0.247	95% BCA Bootstrap UCL 463.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 625.2
		97.5% Chebyshev(Mean, Sd) UCL 730.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 936.8
95% Approximate Gamma UCL	525.8	
95% Adjusted Gamma UCL	552.7	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 625.2

Recommended UCL exceeds the maximum observation

Result (chloride (cl))

General Statistics

Number of Valid Observations	78	Number of Distinct Observations	75

Raw Statistics		Log-transformed Statistics	
Minimum	102	Minimum of Log Data	4.625
Maximum	6680	Maximum of Log Data	8.807
Mean	1437	Mean of log Data	6.806
Median	783	SD of log Data	0.941
SD	1639		
Coefficient of Variation	1.14		
Skewness	1.912		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.318	Lilliefors Test Statistic	0.15
Lilliefors Critical Value	0.1	Lilliefors Critical Value	0.1
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1746	95% H-UCL	1778
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2156
95% Adjusted-CLT UCL	1786	97.5% Chebyshev (MVUE) UCL	2485
95% Modified-t UCL	1753	99% Chebyshev (MVUE) UCL	3132

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.177	Data do not follow a Discernable Distribution (0.05)
Theta Star	1221	
nu star	183.7	
Approximate Chi Square Value (.05)	153.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.0469	95% CLT UCL 1743
Adjusted Chi Square Value	152.8	95% Jackknife UCL 1746
		95% Standard Bootstrap UCL 1735
Anderson-Darling Test Statistic	5.472	95% Bootstrap-t UCL 1801
Anderson-Darling 5% Critical Value	0.777	95% Hall's Bootstrap UCL 1774
Kolmogorov-Smirnov Test Statistic	0.221	95% Percentile Bootstrap UCL 1759
Kolmogorov-Smirnov 5% Critical Value	0.104	95% BCA Bootstrap UCL 1796
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2246
		97.5% Chebyshev(Mean, Sd) UCL 2596
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 3283
95% Approximate Gamma UCL	1722	
95% Adjusted Gamma UCL	1728	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 2246

Result (chloroform)

General Statistics

Number of Valid Data	78	Number of Detected Data	24
Number of Distinct Detected Data	24	Number of Non-Detect Data	54
		Percent Non-Detects	69.23%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00103	Minimum Detected	-6.878
Maximum Detected	0.00395	Maximum Detected	-5.534
Mean of Detected	0.00219	Mean of Detected	-6.222
SD of Detected	0.000965	SD of Detected	0.453
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.907	Lilliefors Test Statistic	0.922
5% Lilliefors Critical Value	0.916	5% Lilliefors Critical Value	0.916
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00102	Mean	-7.177
SD	0.000944	SD	0.687
95% DL/2 (t) UCL	0.0012	95% H-Stat (DL/2) UCL	0.001
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	7.75E-05	Mean in Log Scale	-7.263
SD	0.00184	SD in Log Scale	0.902
95% MLE (t) UCL	0.000425	Mean in Original Scale	0.00103
95% MLE (Tiku) UCL	0.000669	SD in Original Scale	0.000963
		95% Percentile Bootstrap UCL	0.00121
		95% BCA Bootstrap UCL	0.00123

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	4.704	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.000465	
nu star	225.8	
A-D Test Statistic	0.633	
5% A-D Critical Value	0.746	
K-S Test Statistic	0.746	
5% K-S Critical Value	0.178	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.000114	Mean	0.00139
Maximum	0.00463	SD	0.000748
Mean	0.0029	SE of Mean	8.65E-05
Median	0.00306	95% KM (t) UCL	0.00153
SD	0.00117	95% KM (z) UCL	0.00153
k star	3.995	95% KM (jackknife) UCL	0.00151
Theta star	0.000725	95% KM (bootstrap t) UCL	0.00154
Nu star	623.2	95% KM (BCA) UCL	0.0016
AppChi2	566.2	95% KM (Percentile Bootstrap) UCL	0.00155
95% Gamma Approximate UCL	0.00319	95% KM (Chebyshev) UCL	0.00176
95% Adjusted Gamma UCL	0.00319	97.5% KM (Chebyshev) UCL	0.00193
		99% KM (Chebyshev) UCL	0.00225
		Potential UCLs to Use	
		95% KM (t) UCL	0.00153

Note: DL/2 is not a recommended method.

Result (chromium)

General Statistics

Number of Valid Data	78	Number of Detected Data	47
Number of Distinct Detected Data	42	Number of Non-Detect Data	31
		Percent Non-Detects	39.74%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	1.57	Maximum Detected	0.451
Mean of Detected	0.259	Mean of Detected	-2.524
SD of Detected	0.398	SD of Detected	1.636
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	36
Number treated as Detected	42
Single DL Non-Detect Percentage	46.15%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.669
5% Lilliefors Critical Value	0.946

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.95
5% Lilliefors Critical Value	0.946

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.158
SD	0.332
95% DL/2 (t) UCL	0.22
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-3.786
SD	2.024
95% H-Stat (DL/2) UCL	0.212
Log ROS Method	
Mean in Log Scale	-4.115
SD in Log Scale	2.471
Mean in Original Scale	0.157
SD in Original Scale	0.333
95% Percentile Bootstrap UCL	0.221
95% BCA Bootstrap UCL	0.232

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.515
Theta Star	0.503
nu star	48.45
A-D Test Statistic	1.652
5% A-D Critical Value	0.811
K-S Test Statistic	0.811
5% K-S Critical Value	0.136

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1.57
Mean	0.191
Median	0.0496
SD	0.329
k star	0.177
Theta star	1.081
Nu star	27.55
AppChi2	16.58
95% Gamma Approximate UCL	0.317
95% Adjusted Gamma UCL	0.32

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.158
SD	0.33
SE of Mean	0.0378
95% KM (t) UCL	0.221
95% KM (z) UCL	0.22
95% KM (jackknife) UCL	0.221
95% KM (bootstrap t) UCL	0.245
95% KM (BCA) UCL	0.22
95% KM (Percentile Bootstrap) UCL	0.221
95% KM (Chebyshev) UCL	0.323
97.5% KM (Chebyshev) UCL	0.394
99% KM (Chebyshev) UCL	0.534

Potential UCLs to Use

97.5% KM (Chebyshev) UCL	0.394

Result (cobalt)

General Statistics

Number of Valid Data	69	Number of Detected Data	15
Number of Distinct Detected Data	14	Number of Non-Detect Data	54
		Percent Non-Detects	78.26%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.006	Minimum Detected	-5.116
Maximum Detected	0.058	Maximum Detected	-2.847
Mean of Detected	0.0247	Mean of Detected	-3.88
SD of Detected	0.0148	SD of Detected	0.641
Minimum Non-Detect	0.002	Minimum Non-Detect	-6.215
Maximum Non-Detect	0.02	Maximum Non-Detect	-3.912

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	62
Number treated as Detected	7
Single DL Non-Detect Percentage	89.86%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.922	Lilliefors Test Statistic	0.966
5% Lilliefors Critical Value	0.881	5% Lilliefors Critical Value	0.881
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0089	Mean	-5.317
SD	0.0112	SD	1.076
95% DL/2 (t) UCL	0.0112	95% H-Stat (DL/2) UCL	0.00916
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0395	Mean in Log Scale	-5.574
SD	0.00962	SD in Log Scale	1.244
95% MLE (t) UCL	0.0415	Mean in Original Scale	0.00804
95% MLE (Tiku) UCL	0.0455	SD in Original Scale	0.0114
		95% Percentile Bootstrap UCL	0.0104
		95% BCA Bootstrap UCL	0.0109

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.393	Data appear Normal at 5% Significance Level
Theta Star	0.0103	
nu star	71.78	
A-D Test Statistic	0.308	
5% A-D Critical Value	0.745	
K-S Test Statistic	0.745	
5% K-S Critical Value	0.223	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.006	Mean	0.0104
Maximum	0.058	SD	0.0102
Mean	0.0216	SE of Mean	0.00129
Median	0.0195	95% KM (t) UCL	0.0125
SD	0.00841	95% KM (z) UCL	0.0125
k star	7.251	95% KM (jackknife) UCL	0.0129
Theta star	0.00298	95% KM (bootstrap t) UCL	0.0128
Nu star	1001	95% KM (BCA) UCL	0.0167
AppChi2	928.3	95% KM (Percentile Bootstrap) UCL	0.0157
95% Gamma Approximate UCL	0.0233	95% KM (Chebyshev) UCL	0.016
95% Adjusted Gamma UCL	0.0233	97.5% KM (Chebyshev) UCL	0.0184
		99% KM (Chebyshev) UCL	0.0232
		Potential UCLs to Use	
		95% KM (t) UCL	0.0125
		95% KM (Percentile Bootstrap) UCL	0.0157

Note: DL/2 is not a recommended method.

Result (copper)

General Statistics

Number of Valid Data	78	Number of Detected Data	39
Number of Distinct Detected Data	32	Number of Non-Detect Data	39
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.144	Maximum Detected	-1.938
Mean of Detected	0.0347	Mean of Detected	-3.766
SD of Detected	0.035	SD of Detected	0.896
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.0125	Maximum Non-Detect	-4.382

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	50
Number treated as Detected	28
Single DL Non-Detect Percentage	64.10%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.755	Lilliefors Test Statistic	0.965
5% Lilliefors Critical Value	0.939	5% Lilliefors Critical Value	0.939
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0189	Mean	-4.799
SD	0.0293	SD	1.24
95% DL/2 (t) UCL	0.0244	95% H-Stat (DL/2) UCL	0.0163
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.949
		SD in Log Scale	1.469
		Mean in Original Scale	0.0188
		SD in Original Scale	0.0294
		95% Percentile Bootstrap UCL	0.0246
		95% BCA Bootstrap UCL	0.0259

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.291	Data appear Lognormal at 5% Significance Level
Theta Star	0.0269	
nu star	100.7	
A-D Test Statistic	0.962	
5% A-D Critical Value	0.769	
K-S Test Statistic	0.769	
5% K-S Critical Value	0.144	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0199
Maximum	0.144	SD	0.0286
Mean	0.0328	SE of Mean	0.00328
Median	0.0255	95% KM (t) UCL	0.0254
SD	0.0287	95% KM (z) UCL	0.0253
k star	0.527	95% KM (jackknife) UCL	0.0253
Theta star	0.0622	95% KM (bootstrap t) UCL	0.0272
Nu star	82.27	95% KM (BCA) UCL	0.0256
AppChi2	62.37	95% KM (Percentile Bootstrap) UCL	0.0255
95% Gamma Approximate UCL	0.0433	95% KM (Chebyshev) UCL	0.0342
95% Adjusted Gamma UCL	0.0435	97.5% KM (Chebyshev) UCL	0.0404
		99% KM (Chebyshev) UCL	0.0525
		Potential UCLs to Use	
		95% KM (t) UCL	0.0254
		95% KM (% Bootstrap) UCL	0.0255

Note: DL/2 is not a recommended method.

Result (cymene)

General Statistics

Number of Valid Data	78	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	73
		Percent Non-Detects	93.59%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00319	Minimum Detected	-5.748
Maximum Detected	0.0146	Maximum Detected	-4.227
Mean of Detected	0.00689	Mean of Detected	-5.115
SD of Detected	0.00447	SD of Detected	0.561
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.796
5% Lilliefors Critical Value	0.762

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00091
SD	0.00188
95% DL/2 (t) UCL	0.00126
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.931
5% Lilliefors Critical Value	0.762

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.442
SD	0.626
95% H-Stat (DL/2) UCL	0.000727
Log ROS Method	
Mean in Log Scale	-8.935
SD in Log Scale	1.946
Mean in Original Scale	0.000737
SD in Original Scale	0.00197
95% Percentile Bootstrap UCL	0.00114
95% BCA Bootstrap UCL	0.00135

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.646
Theta Star	0.00419
nu star	16.46
A-D Test Statistic	0.414
5% A-D Critical Value	0.682
K-S Test Statistic	0.682
5% K-S Critical Value	0.359

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00183
Maximum	0.0752
Mean	0.043
Median	0.0457
SD	0.0216
k star	2.277
Theta star	0.0189
Nu star	355.3
AppChi2	312.6
95% Gamma Approximate UCL	0.0488
95% Adjusted Gamma UCL	0.0489

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00343
SD	0.00136
SE of Mean	0.000172
95% KM (t) UCL	0.00371
95% KM (z) UCL	0.00371
95% KM (jackknife) UCL	0.00434
95% KM (bootstrap t) UCL	0.00391
95% KM (BCA) UCL	0.00636
95% KM (Percentile Bootstrap) UCL	0.00603
95% KM (Chebyshev) UCL	0.00418
97.5% KM (Chebyshev) UCL	0.0045
99% KM (Chebyshev) UCL	0.00514

Potential UCLs to Use

95% KM (t) UCL	0.00371
95% KM (Percentile Bootstrap) UCL	0.00603

Result (dibenzofuran)

General Statistics

Number of Valid Data	78	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	63
		Percent Non-Detects	80.77%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0072	Minimum Detected	-4.934
Maximum Detected	0.0285	Maximum Detected	-3.558
Mean of Detected	0.0131	Mean of Detected	-4.41
SD of Detected	0.00561	SD of Detected	0.394
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.863	Lilliefors Test Statistic	0.936
5% Lilliefors Critical Value	0.881	5% Lilliefors Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.453	Mean	-4.427
SD	0.964	SD	2.597
95% DL/2 (t) UCL	0.635	95% H-Stat (DL/2) UCL	1.197
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-5.479
		SD in Log Scale	0.786
		Mean in Original Scale	0.00566
		SD in Original Scale	0.00489
		95% Percentile Bootstrap UCL	0.00655
		95% BCA Bootstrap UCL	0.00672

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	5.477	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.00239	
nu star	164.3	
A-D Test Statistic	0.413	
5% A-D Critical Value	0.738	
K-S Test Statistic	0.738	
5% K-S Critical Value	0.222	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	0.00313
Maximum	0.0321
Mean	0.0203
Median	0.0216
SD	0.00731
k star	5.67
Theta star	0.00357
Nu star	884.5
AppChi2	816.4
95% Gamma Approximate UCL	0.022
95% Adjusted Gamma UCL	0.022

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0086
SD	0.00364
SE of Mean	0.000473
95% KM (t) UCL	0.00939
95% KM (z) UCL	0.00938
95% KM (jackknife) UCL	0.00924
95% KM (bootstrap t) UCL	0.00962
95% KM (BCA) UCL	0.0101
95% KM (Percentile Bootstrap) UCL	0.00965
95% KM (Chebyshev) UCL	0.0107
97.5% KM (Chebyshev) UCL	0.0116
99% KM (Chebyshev) UCL	0.0133

Potential UCLs to Use	
95% KM (t) UCL	0.00939

Result (diphenylamine)

General Statistics

Number of Valid Data	78	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	73
		Percent Non-Detects	93.59%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00747	Minimum Detected	-4.897
Maximum Detected	1.02	Maximum Detected	0.0198
Mean of Detected	0.229	Mean of Detected	-2.918
SD of Detected	0.442	SD of Detected	1.799
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.585	Lilliefors Test Statistic	0.871
5% Lilliefors Critical Value	0.762	5% Lilliefors Critical Value	0.762
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.69	Mean	-3.914
SD	1.112	SD	3.075
95% DL/2 (t) UCL	0.899	95% H-Stat (DL/2) UCL	14.63
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-12.8
		SD in Log Scale	5.231
		Mean in Original Scale	0.0154
		SD in Original Scale	0.116
		95% Percentile Bootstrap UCL	0.0411
		95% BCA Bootstrap UCL	0.0675

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.312	Data appear Lognormal at 5% Significance Level
Theta Star	0.735	
nu star	3.122	
A-D Test Statistic	0.763	
5% A-D Critical Value	0.718	
K-S Test Statistic	0.718	
5% K-S Critical Value	0.374	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	2031
Mean	413.1
Median	178.2
SD	518.4
k star	0.28
Theta star	1475
Nu star	43.69
AppChi2	29.54
95% Gamma Approximate UCL	611.2
95% Adjusted Gamma UCL	615.7

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	0.0269
SD	0.133
SE of Mean	0.0197
95% KM (t) UCL	0.0597
95% KM (z) UCL	0.0593
95% KM (jackknife) UCL	0.0523
95% KM (bootstrap t) UCL	0.384
95% KM (BCA) UCL	N/A
95% KM (Percentile Bootstrap) UCL	0.0815
95% KM (Chebyshev) UCL	0.113
97.5% KM (Chebyshev) UCL	0.15
99% KM (Chebyshev) UCL	0.223

Potential UCLs to Use	
95% KM (Chebyshev) UCL	0.113

Result (dro)

General Statistics

Number of Valid Data	78	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	63
		Percent Non-Detects	80.77%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.66	Minimum Detected	2.159
Maximum Detected	523	Maximum Detected	6.26
Mean of Detected	181.8	Mean of Detected	4.339
SD of Detected	182.2	SD of Detected	1.569
Minimum Non-Detect	5	Minimum Non-Detect	1.609
Maximum Non-Detect	50	Maximum Non-Detect	3.912

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	70
Number treated as Detected	8
Single DL Non-Detect Percentage	89.74%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.826	Lilliefors Test Statistic	0.85
5% Lilliefors Critical Value	0.881	5% Lilliefors Critical Value	0.881
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	47.65	Mean	2.667
SD	102.4	SD	1.474
95% DL/2 (t) UCL	66.95	95% H-Stat (DL/2) UCL	51.47
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.499
		SD in Log Scale	2.815
		Mean in Original Scale	38.13
		SD in Original Scale	105.2
		95% Percentile Bootstrap UCL	59.15
		95% BCA Bootstrap UCL	61

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.604	Data do not follow a Discernable Distribution (0.05)
Theta Star	300.8	
nu star	18.13	
A-D Test Statistic	1.029	
5% A-D Critical Value	0.779	
K-S Test Statistic	0.779	
5% K-S Critical Value	0.231	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	43.1
Maximum	1998	SD	102.8
Mean	559.1	SE of Mean	12.08
Median	377.3	95% KM (t) UCL	63.21
SD	544.7	95% KM (z) UCL	62.97
k star	0.266	95% KM (jackknife) UCL	61.54
Theta star	2104	95% KM (bootstrap t) UCL	68.48
Nu star	41.45	95% KM (BCA) UCL	65.83
AppChi2	27.69	95% KM (Percentile Bootstrap) UCL	63.76
95% Gamma Approximate UCL	836.8	95% KM (Chebyshev) UCL	95.75
95% Adjusted Gamma UCL	843.2	97.5% KM (Chebyshev) UCL	118.5
		99% KM (Chebyshev) UCL	163.3
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	95.75

Note: DL/2 is not a recommended method.

Result (ethylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	71
		Percent Non-Detects	91.03%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00175	Minimum Detected	-6.348
Maximum Detected	0.0156	Maximum Detected	-4.16
Mean of Detected	0.00735	Mean of Detected	-5.111
SD of Detected	0.00463	SD of Detected	0.723
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.949
5% Lilliefors Critical Value	0.803

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00111
SD	0.00236
95% DL/2 (t) UCL	0.00156
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.967
5% Lilliefors Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.377
SD	0.744
95% H-Stat (DL/2) UCL	0.000833
Log ROS Method	
Mean in Log Scale	-8.953
SD in Log Scale	2.117
Mean in Original Scale	0.000928
SD in Original Scale	0.00244
95% Percentile Bootstrap UCL	0.00141
95% BCA Bootstrap UCL	0.00156

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.63
Theta Star	0.00451
nu star	22.82
A-D Test Statistic	0.179
5% A-D Critical Value	0.713
K-S Test Statistic	0.713
5% K-S Critical Value	0.314

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.000649
Maximum	0.0698
Mean	0.0385
Median	0.0409
SD	0.0206
k star	1.936
Theta star	0.0199
Nu star	302.1
AppChi2	262.8
95% Gamma Approximate UCL	0.0443
95% Adjusted Gamma UCL	0.0444

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00225
SD	0.00205
SE of Mean	0.000251
95% KM (t) UCL	0.00267
95% KM (z) UCL	0.00266
95% KM (jackknife) UCL	0.00338
95% KM (bootstrap t) UCL	0.00273
95% KM (BCA) UCL	0.00618
95% KM (Percentile Bootstrap) UCL	0.00606
95% KM (Chebyshev) UCL	0.00335
97.5% KM (Chebyshev) UCL	0.00382
99% KM (Chebyshev) UCL	0.00475

Potential UCLs to Use

95% KM (t) UCL	0.00267
95% KM (Percentile Bootstrap) UCL	0.00606

Result (fluorene)

General Statistics

Number of Valid Data	78	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	63
		Percent Non-Detects	80.77%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00517	Minimum Detected	-5.265
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.135	Mean of Detected	-3.327
SD of Detected	0.352	SD of Detected	1.467
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.379	Lilliefors Test Statistic	0.92
5% Lilliefors Critical Value	0.881	5% Lilliefors Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.476	Mean	-4.219
SD	0.966	SD	2.702
95% DL/2 (t) UCL	0.658	95% H-Stat (DL/2) UCL	2.269
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-7.551
		SD in Log Scale	3.098
		Mean in Original Scale	0.0279
		SD in Original Scale	0.159
		95% Percentile Bootstrap UCL	0.0643
		95% BCA Bootstrap UCL	0.0871

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.429	Data appear Lognormal at 5% Significance Level
Theta Star	0.315	
nu star	12.88	
A-D Test Statistic	1.451	
5% A-D Critical Value	0.797	
K-S Test Statistic	0.797	
5% K-S Critical Value	0.234	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0357
Maximum	17.52	SD	0.174
Mean	3.07	SE of Mean	0.0225
Median	1.418	95% KM (t) UCL	0.0731
SD	3.875	95% KM (z) UCL	0.0727
k star	0.233	95% KM (jackknife) UCL	0.0711
Theta star	13.19	95% KM (bootstrap t) UCL	0.269
Nu star	36.3	95% KM (BCA) UCL	0.0852
AppChi2	23.51	95% KM (Percentile Bootstrap) UCL	0.0778
95% Gamma Approximate UCL	4.74	95% KM (Chebyshev) UCL	0.134
95% Adjusted Gamma UCL	4.779	97.5% KM (Chebyshev) UCL	0.176
		99% KM (Chebyshev) UCL	0.259
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.0852

Note: DL/2 is not a recommended method.

Result (fluoride)

General Statistics

Number of Valid Data	78	Number of Detected Data	64
Number of Distinct Detected Data	55	Number of Non-Detect Data	14
		Percent Non-Detects	17.95%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.235	Minimum Detected	-1.448
Maximum Detected	12.5	Maximum Detected	2.526
Mean of Detected	3.224	Mean of Detected	1.019
SD of Detected	1.695	SD of Detected	0.633
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.2	Maximum Non-Detect	-1.609

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.128	Lilliefors Test Statistic	0.192
5% Lilliefors Critical Value	0.111	5% Lilliefors Critical Value	0.111
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.664	Mean	0.423
SD	1.951	SD	1.405
95% DL/2 (t) UCL	3.031	95% H-Stat (DL/2) UCL	4.806
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.469	Mean in Log Scale	0.799
SD	2.261	SD in Log Scale	0.751
95% MLE (t) UCL	2.895	Mean in Original Scale	2.797
95% MLE (Tiku) UCL	2.909	SD in Original Scale	1.79
		95% Percentile Bootstrap UCL	3.141
		95% BCA Bootstrap UCL	3.166

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.301	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.977	
nu star	422.5	
A-D Test Statistic	2.136	
5% A-D Critical Value	0.756	
K-S Test Statistic	0.756	
5% K-S Critical Value	0.112	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	2.688
Maximum	12.5	SD	1.907
Mean	2.848	SE of Mean	0.218
Median	3.02	95% KM (t) UCL	3.05
SD	1.756	95% KM (z) UCL	3.046
k star	1.119	95% KM (jackknife) UCL	3.04
Theta star	2.545	95% KM (bootstrap t) UCL	3.085
Nu star	174.6	95% KM (BCA) UCL	3.132
AppChi2	145	95% KM (Percentile Bootstrap) UCL	3.081
95% Gamma Approximate UCL	3.429	95% KM (Chebyshev) UCL	3.636
95% Adjusted Gamma UCL	3.441	97.5% KM (Chebyshev) UCL	4.047
		99% KM (Chebyshev) UCL	4.853
		Potential UCLs to Use	
		95% KM (BCA) UCL	3.132

Note: DL/2 is not a recommended method.

Result (gro)

General Statistics

Number of Valid Data	78	Number of Detected Data	21
Number of Distinct Detected Data	20	Number of Non-Detect Data	57
		Percent Non-Detects	73.08%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.111	Minimum Detected	-2.198
Maximum Detected	3.73	Maximum Detected	1.316
Mean of Detected	0.82	Mean of Detected	-0.547
SD of Detected	0.805	SD of Detected	0.851
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.731	Lilliefors Test Statistic	0.987
5% Lilliefors Critical Value	0.908	5% Lilliefors Critical Value	0.908
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.257	Mean	-2.337
SD	0.536	SD	1.176
95% DL/2 (t) UCL	0.358	95% H-Stat (DL/2) UCL	0.197
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.779
		SD in Log Scale	1.8
		Mean in Original Scale	0.258
		SD in Original Scale	0.537
		95% Percentile Bootstrap UCL	0.361
		95% BCA Bootstrap UCL	0.402

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.383	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.593		
nu star	58.1		
A-D Test Statistic	0.333	**Nonparametric Statistics**	
5% A-D Critical Value	0.758	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.758	Mean	0.302
5% K-S Critical Value	0.193	SD	0.515
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0598
		95% KM (t) UCL	0.402
Assuming Gamma Distribution		95% KM (z) UCL	0.4
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.388
Minimum	1E-09	95% KM (bootstrap t) UCL	0.422
Maximum	4.24	95% KM (BCA) UCL	0.494
Mean	1.869	95% KM (Percentile Bootstrap) UCL	0.45
Median	1.703	95% KM (Chebyshev) UCL	0.563
SD	1.329	97.5% KM (Chebyshev) UCL	0.675
k star	0.548	99% KM (Chebyshev) UCL	0.897
Theta star	3.41		
Nu star	85.5	**Potential UCLs to Use**	
AppChi2	65.19	95% KM (t) UCL	0.402
95% Gamma Approximate UCL	2.452		
95% Adjusted Gamma UCL	2.464		

Note: DL/2 is not a recommended method.

Result (hexavalent chromium)

General Statistics

Number of Valid Data	40	Number of Detected Data	12
Number of Distinct Detected Data	11	Number of Non-Detect Data	28
		Percent Non-Detects	70.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0325	Minimum Detected	-3.427
Maximum Detected	0.57	Maximum Detected	-0.562
Mean of Detected	0.0992	Mean of Detected	-2.784
SD of Detected	0.151	SD of Detected	0.826
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.48	Shapiro Wilk Test Statistic	0.752
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0333	Mean	-4.544
SD	0.0915	SD	1.247
95% DL/2 (t) UCL	0.0576	95% H-Stat (DL/2) UCL	0.0315
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.78
		SD in Log Scale	1.696
		Mean in Original Scale	0.0339
		SD in Original Scale	0.0914
		95% Percentile Bootstrap UCL	0.0603
		95% BCA Bootstrap UCL	0.0795

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.952	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.104	
nu star	22.85	
A-D Test Statistic	1.716	
5% A-D Critical Value	0.752	
K-S Test Statistic	0.752	
5% K-S Critical Value	0.251	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0525
Maximum	0.695	SD	0.0851
Mean	0.254	SE of Mean	0.014
Median	0.178	95% KM (t) UCL	0.0762
SD	0.226	95% KM (z) UCL	0.0756
k star	0.438	95% KM (jackknife) UCL	0.0745
Theta star	0.58	95% KM (bootstrap t) UCL	0.189
Nu star	35.05	95% KM (BCA) UCL	0.0901
AppChi2	22.5	95% KM (Percentile Bootstrap) UCL	0.0791
95% Gamma Approximate UCL	0.396	95% KM (Chebyshev) UCL	0.114
95% Adjusted Gamma UCL	0.402	97.5% KM (Chebyshev) UCL	0.14
		99% KM (Chebyshev) UCL	0.192
		Potential UCLs to Use	
		95% KM (t) UCL	0.0762
		95% KM (% Bootstrap) UCL	0.0791

Note: DL/2 is not a recommended method.

Result (iron)

General Statistics

Number of Valid Data	52	Number of Detected Data	48
Number of Distinct Detected Data	48	Number of Non-Detect Data	4
		Percent Non-Detects	7.69%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.012	Minimum Detected	-4.423
Maximum Detected	63.1	Maximum Detected	4.145
Mean of Detected	3.606	Mean of Detected	-0.112
SD of Detected	9.577	SD of Detected	1.714
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	6
Number treated as Detected	46
Single DL Non-Detect Percentage	11.54%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.382	Lilliefors Test Statistic	0.987
5% Lilliefors Critical Value	0.947	5% Lilliefors Critical Value	0.947
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.33	Mean	-0.418
SD	9.244	SD	1.973
95% DL/2 (t) UCL	5.478	95% H-Stat (DL/2) UCL	8.323
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.52	Mean in Log Scale	-0.4
SD	9.886	SD in Log Scale	1.935
95% MLE (t) UCL	4.817	Mean in Original Scale	3.331
95% MLE (Tiku) UCL	4.654	SD in Original Scale	9.244
		95% Percentile Bootstrap UCL	5.719
		95% BCA Bootstrap UCL	7.041

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.446	Data appear Lognormal at 5% Significance Level
Theta Star	8.08	
nu star	42.85	
A-D Test Statistic	1.991	
5% A-D Critical Value	0.823	
K-S Test Statistic	0.823	
5% K-S Critical Value	0.136	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	3.33
Maximum	63.1	SD	9.155
Mean	3.329	SE of Mean	1.283
Median	0.733	95% KM (t) UCL	5.479
SD	9.245	95% KM (z) UCL	5.44
k star	0.244	95% KM (jackknife) UCL	5.477
Theta star	13.63	95% KM (bootstrap t) UCL	9.519
Nu star	25.4	95% KM (BCA) UCL	5.778
AppChi2	14.92	95% KM (Percentile Bootstrap) UCL	5.527
95% Gamma Approximate UCL	5.667	95% KM (Chebyshev) UCL	8.922
95% Adjusted Gamma UCL	5.756	97.5% KM (Chebyshev) UCL	11.34
		99% KM (Chebyshev) UCL	16.1
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	11.34

Note: DL/2 is not a recommended method.

Result (isopropylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	60
		Percent Non-Detects	76.92%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00153	Minimum Detected	-6.482
Maximum Detected	0.0192	Maximum Detected	-3.953
Mean of Detected	0.00695	Mean of Detected	-5.231
SD of Detected	0.00508	SD of Detected	0.768
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.89
5% Lilliefors Critical Value	0.897

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.965
5% Lilliefors Critical Value	0.897

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00199
SD	0.00363
95% DL/2 (t) UCL	0.00267
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.054
SD	1.068
95% H-Stat (DL/2) UCL	0.00146
Log ROS Method	
Mean in Log Scale	-7.488
SD in Log Scale	1.695
Mean in Original Scale	0.002
SD in Original Scale	0.00365
95% Percentile Bootstrap UCL	0.00266
95% BCA Bootstrap UCL	0.00285

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.753
Theta Star	0.00396
nu star	63.13
A-D Test Statistic	0.245
5% A-D Critical Value	0.752
K-S Test Statistic	0.752
5% K-S Critical Value	0.206

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.0323
Mean	0.016
Median	0.0159
SD	0.00983
k star	0.864
Theta star	0.0186
Nu star	134.8
AppChi2	109
95% Gamma Approximate UCL	0.0198
95% Adjusted Gamma UCL	0.0199

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00278
SD	0.00329
SE of Mean	0.000384
95% KM (t) UCL	0.00342
95% KM (z) UCL	0.00341
95% KM (jackknife) UCL	0.00334
95% KM (bootstrap t) UCL	0.0036
95% KM (BCA) UCL	0.00389
95% KM (Percentile Bootstrap) UCL	0.00365
95% KM (Chebyshev) UCL	0.00445
97.5% KM (Chebyshev) UCL	0.00518
99% KM (Chebyshev) UCL	0.0066

Potential UCLs to Use

95% KM (t) UCL	0.00342

Result (lithium)

General Statistics

Number of Valid Observations	13	Number of Distinct Observations	13

Raw Statistics		Log-transformed Statistics	
Minimum	0.056	Minimum of Log Data	-2.882
Maximum	1.78	Maximum of Log Data	0.577
Mean	0.422	Mean of log Data	-1.343
Median	0.242	SD of log Data	1
SD	0.481		
Coefficient of Variation	1.139		
Skewness	2.161		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.733	Shapiro Wilk Test Statistic	0.97
Shapiro Wilk Critical Value	0.866	Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.66	95% H-UCL	0.979
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.94
95% Adjusted-CLT UCL	0.727	97.5% Chebyshev (MVUE) UCL	1.17
95% Modified-t UCL	0.673	99% Chebyshev (MVUE) UCL	1.623

Gamma Distribution Test		Data Distribution
k star (bias corrected)	0.959	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.44	
nu star	24.92	
Approximate Chi Square Value (.05)	14.55	
Adjusted Level of Significance	0.0301	
Adjusted Chi Square Value	13.43	
Anderson-Darling Test Statistic	0.466	
Anderson-Darling 5% Critical Value	0.755	
Kolmogorov-Smirnov Test Statistic	0.198	
Kolmogorov-Smirnov 5% Critical Value	0.242	
Data appear Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	0.641
95% Jackknife UCL	0.66
95% Standard Bootstrap UCL	0.632
95% Bootstrap-t UCL	0.894
95% Hall's Bootstrap UCL	1.407
95% Percentile Bootstrap UCL	0.644
95% BCA Bootstrap UCL	0.739
95% Chebyshev(Mean, Sd) UCL	1.003
97.5% Chebyshev(Mean, Sd) UCL	1.254
99% Chebyshev(Mean, Sd) UCL	1.748

Assuming Gamma Distribution	
95% Approximate Gamma UCL	0.723
95% Adjusted Gamma UCL	0.783

Potential UCL to Use	Use 95% Approximate Gamma UCL	0.723

Result (magnesium)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics

Minimum	380
Maximum	1730
Mean	691.5
Median	505
SD	486.6
Coefficient of Variation	0.704
Skewness	1.983

Log-transformed Statistics

Minimum of Log Data	5.94
Maximum of Log Data	7.456
Mean of log Data	6.388
SD of log Data	0.514

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.585
Shapiro Wilk Critical Value	0.859

Data not Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	943.7

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	1008
95% Modified-t UCL	957.1

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.699
Shapiro Wilk Critical Value	0.859

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	947.8
95% Chebyshev (MVUE) UCL	1114
97.5% Chebyshev (MVUE) UCL	1307
99% Chebyshev (MVUE) UCL	1684

Gamma Distribution Test

k star (bias corrected)	2.658
Theta Star	260.2
nu star	63.78
Approximate Chi Square Value (.05)	46.41
Adjusted Level of Significance	0.029
Adjusted Chi Square Value	44.15
Anderson-Darling Test Statistic	1.976
Anderson-Darling 5% Critical Value	0.738
Kolmogorov-Smirnov Test Statistic	0.379
Kolmogorov-Smirnov 5% Critical Value	0.247

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	950.4
95% Adjusted Gamma UCL	998.9

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	922.5
95% Jackknife UCL	943.7
95% Standard Bootstrap UCL	913.2
95% Bootstrap-t UCL	2321
95% Hall's Bootstrap UCL	2817
95% Percentile Bootstrap UCL	914.5
95% BCA Bootstrap UCL	1004
95% Chebyshev(Mean, Sd) UCL	1304
97.5% Chebyshev(Mean, Sd) UCL	1569
99% Chebyshev(Mean, Sd) UCL	2089

Potential UCL to Use

Use 95% Chebyshev (Mean, Sd) UCL 1304

Result (manganese)

General Statistics

Number of Valid Data	52	Number of Detected Data	43
Number of Distinct Detected Data	41	Number of Non-Detect Data	9
		Percent Non-Detects	17.31%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	1.25	Maximum Detected	0.223
Mean of Detected	0.348	Mean of Detected	-1.515
SD of Detected	0.316	SD of Detected	1.061
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	10
Number treated as Detected	42
Single DL Non-Detect Percentage	19.23%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.846	Lilliefors Test Statistic	0.968
5% Lilliefors Critical Value	0.943	5% Lilliefors Critical Value	0.943
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.289	Mean	-2.073
SD	0.315	SD	1.588
95% DL/2 (t) UCL	0.362	95% H-Stat (DL/2) UCL	0.462
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.249	Mean in Log Scale	-1.919
SD	0.364	SD in Log Scale	1.323
95% MLE (t) UCL	0.334	Mean in Original Scale	0.292
95% MLE (Tiku) UCL	0.334	SD in Original Scale	0.313
		95% Percentile Bootstrap UCL	0.367
		95% BCA Bootstrap UCL	0.37

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.158	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.3	
nu star	99.63	
A-D Test Statistic	0.416	
5% A-D Critical Value	0.773	
K-S Test Statistic	0.773	
5% K-S Critical Value	0.138	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.289
Maximum	1.25	SD	0.312
Mean	0.289	SE of Mean	0.0437
Median	0.169	95% KM (t) UCL	0.363
SD	0.315	95% KM (z) UCL	0.361
k star	0.242	95% KM (jackknife) UCL	0.359
Theta star	1.193	95% KM (bootstrap t) UCL	0.374
Nu star	25.22	95% KM (BCA) UCL	0.366
AppChi2	14.78	95% KM (Percentile Bootstrap) UCL	0.361
95% Gamma Approximate UCL	0.494	95% KM (Chebyshev) UCL	0.48
95% Adjusted Gamma UCL	0.501	97.5% KM (Chebyshev) UCL	0.562
		99% KM (Chebyshev) UCL	0.725
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.366

Note: DL/2 is not a recommended method.

Result (molybdenum)

General Statistics

Number of Valid Data	52	Number of Detected Data	44
Number of Distinct Detected Data	37	Number of Non-Detect Data	8
		Percent Non-Detects	15.38%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.054	Minimum Detected	-2.919
Maximum Detected	0.852	Maximum Detected	-0.16
Mean of Detected	0.241	Mean of Detected	-1.633
SD of Detected	0.168	SD of Detected	0.653
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.853	Lilliefors Test Statistic	0.978
5% Lilliefors Critical Value	0.944	5% Lilliefors Critical Value	0.944
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.208	Mean	-1.949
SD	0.174	SD	0.96
95% DL/2 (t) UCL	0.248	95% H-Stat (DL/2) UCL	0.259
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.195	Mean in Log Scale	-1.864
SD	0.191	SD in Log Scale	0.821
95% MLE (t) UCL	0.239	Mean in Original Scale	0.211
95% MLE (Tiku) UCL	0.239	SD in Original Scale	0.17
		95% Percentile Bootstrap UCL	0.251
		95% BCA Bootstrap UCL	0.257

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	2.374	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.102	
nu star	208.9	
A-D Test Statistic	0.581	
5% A-D Critical Value	0.758	
K-S Test Statistic	0.758	
5% K-S Critical Value	0.135	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.212
Maximum	0.852	SD	0.167
Mean	0.209	SE of Mean	0.0235
Median	0.162	95% KM (t) UCL	0.252
SD	0.173	95% KM (z) UCL	0.251
k star	0.469	95% KM (jackknife) UCL	0.251
Theta star	0.445	95% KM (bootstrap t) UCL	0.259
Nu star	48.83	95% KM (BCA) UCL	0.252
AppChi2	33.78	95% KM (Percentile Bootstrap) UCL	0.253
95% Gamma Approximate UCL	0.302	95% KM (Chebyshev) UCL	0.315
95% Adjusted Gamma UCL	0.305	97.5% KM (Chebyshev) UCL	0.359
		99% KM (Chebyshev) UCL	0.446
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.252

Note: DL/2 is not a recommended method.

Result (mtbe)

General Statistics

Number of Valid Data	78	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	62
		Percent Non-Detects	79.49%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00123	Minimum Detected	-6.701
Maximum Detected	0.0104	Maximum Detected	-4.566
Mean of Detected	0.00502	Mean of Detected	-5.534
SD of Detected	0.00329	SD of Detected	0.752
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.894
5% Lilliefors Critical Value	0.887

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.919
5% Lilliefors Critical Value	0.887

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00143
SD	0.00234
95% DL/2 (t) UCL	0.00187
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.177
SD	0.903
95% H-Stat (DL/2) UCL	0.00109
Log ROS Method	
Mean in Log Scale	-7.878
SD in Log Scale	1.677
Mean in Original Scale	0.00133
SD in Original Scale	0.0024
95% Percentile Bootstrap UCL	0.00179
95% BCA Bootstrap UCL	0.00193

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.863
Theta Star	0.00269
nu star	59.6
A-D Test Statistic	0.4
5% A-D Critical Value	0.749
K-S Test Statistic	0.749
5% K-S Critical Value	0.218

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.0238
Mean	0.0123
Median	0.0123
SD	0.00715
k star	1.193
Theta star	0.0103
Nu star	186
AppChi2	155.5
95% Gamma Approximate UCL	0.0147
95% Adjusted Gamma UCL	0.0148

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00201
SD	0.0021
SE of Mean	0.000246
95% KM (t) UCL	0.00242
95% KM (z) UCL	0.00241
95% KM (jackknife) UCL	0.00234
95% KM (bootstrap t) UCL	0.00254
95% KM (BCA) UCL	0.00279
95% KM (Percentile Bootstrap) UCL	0.00252
95% KM (Chebyshev) UCL	0.00308
97.5% KM (Chebyshev) UCL	0.00354
99% KM (Chebyshev) UCL	0.00445

Potential UCLs to Use

95% KM (t) UCL	0.00242
95% KM (Percentile Bootstrap) UCL	0.00252

Result (naphthalene)

General Statistics

Number of Valid Data	78	Number of Detected Data	22
Number of Distinct Detected Data	22	Number of Non-Detect Data	56
		Percent Non-Detects	71.79%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00588	Minimum Detected	-5.136
Maximum Detected	1.76	Maximum Detected	0.565
Mean of Detected	0.171	Mean of Detected	-2.591
SD of Detected	0.362	SD of Detected	1.246
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.005	Maximum Non-Detect	-5.298

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.385	Lilliefors Test Statistic	0.949
5% Lilliefors Critical Value	0.911	5% Lilliefors Critical Value	0.911
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.05	Mean	-5.032
SD	0.204	SD	1.672
95% DL/2 (t) UCL	0.0885	95% H-Stat (DL/2) UCL	0.0286
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.574
		SD in Log Scale	2.472
		Mean in Original Scale	0.0506
		SD in Original Scale	0.204
		95% Percentile Bootstrap UCL	0.095
		95% BCA Bootstrap UCL	0.124

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.659	Data appear Lognormal at 5% Significance Level
Theta Star	0.259	
nu star	29.01	
A-D Test Statistic	1.183	
5% A-D Critical Value	0.785	
K-S Test Statistic	0.785	
5% K-S Critical Value	0.193	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0525
Maximum	2.619	SD	0.202
Mean	0.771	SE of Mean	0.0234
Median	0.401	95% KM (t) UCL	0.0914
SD	0.816	95% KM (z) UCL	0.091
k star	0.3	95% KM (jackknife) UCL	0.0895
Theta star	2.57	95% KM (bootstrap t) UCL	0.179
Nu star	46.83	95% KM (BCA) UCL	0.106
AppChi2	32.12	95% KM (Percentile Bootstrap) UCL	0.0991
95% Gamma Approximate UCL	1.125	95% KM (Chebyshev) UCL	0.154
95% Adjusted Gamma UCL	1.133	97.5% KM (Chebyshev) UCL	0.199
		99% KM (Chebyshev) UCL	0.285
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.106

Note: DL/2 is not a recommended method.

Result (n-butylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	71
		Percent Non-Detects	91.03%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00125	Minimum Detected	-6.685
Maximum Detected	0.01	Maximum Detected	-4.605
Mean of Detected	0.00374	Mean of Detected	-5.909
SD of Detected	0.00346	SD of Detected	0.823
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.755	Lilliefors Test Statistic	0.849
5% Lilliefors Critical Value	0.803	5% Lilliefors Critical Value	0.803
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.000791	Mean	-7.449
SD	0.00134	SD	0.538
95% DL/2 (t) UCL	0.00104	95% H-Stat (DL/2) UCL	0.000686
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-10.51
		SD in Log Scale	2.534
		Mean in Original Scale	0.000415
		SD in Original Scale	0.00144
		95% Percentile Bootstrap UCL	0.000716
		95% BCA Bootstrap UCL	0.000869

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.073	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.00349	
nu star	15.02	
A-D Test Statistic	0.698	
5% A-D Critical Value	0.719	
K-S Test Statistic	0.719	
5% K-S Critical Value	0.316	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.00147
Maximum	0.0844	SD	0.0012
Mean	0.0396	SE of Mean	0.000146
Median	0.0395	95% KM (t) UCL	0.00172
SD	0.0262	95% KM (z) UCL	0.00171
k star	0.915	95% KM (jackknife) UCL	0.00167
Theta star	0.0433	95% KM (bootstrap t) UCL	0.00256
Nu star	142.8	95% KM (BCA) UCL	0.0028
AppChi2	116.2	95% KM (Percentile Bootstrap) UCL	0.00201
95% Gamma Approximate UCL	0.0487	95% KM (Chebyshev) UCL	0.00211
95% Adjusted Gamma UCL	0.0489	97.5% KM (Chebyshev) UCL	0.00239
		99% KM (Chebyshev) UCL	0.00293
		Potential UCLs to Use	
		95% KM (t) UCL	0.00172

Note: DL/2 is not a recommended method.

Result (nickel)

General Statistics

Number of Valid Data	69	Number of Detected Data	54
Number of Distinct Detected Data	45	Number of Non-Detect Data	15
		Percent Non-Detects	21.74%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.006	Minimum Detected	-5.116
Maximum Detected	3.45	Maximum Detected	1.238
Mean of Detected	0.383	Mean of Detected	-2.293
SD of Detected	0.738	SD of Detected	1.668
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	28
Number treated as Detected	41
Single DL Non-Detect Percentage	40.58%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.348	Lilliefors Test Statistic	0.0903
5% Lilliefors Critical Value	0.121	5% Lilliefors Critical Value	0.121
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.301	Mean	-2.941
SD	0.67	SD	1.95
95% DL/2 (t) UCL	0.436	95% H-Stat (DL/2) UCL	0.34
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.052
		SD in Log Scale	2.111
		Mean in Original Scale	0.301
		SD in Original Scale	0.671
		95% Percentile Bootstrap UCL	0.448
		95% BCA Bootstrap UCL	0.488

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.465	Data appear Lognormal at 5% Significance Level
Theta Star	0.824	
nu star	50.21	
A-D Test Statistic	2.411	
5% A-D Critical Value	0.82	
K-S Test Statistic	0.82	
5% K-S Critical Value	0.128	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.302
Maximum	3.45	SD	0.665
Mean	0.301	SE of Mean	0.0809
Median	0.064	95% KM (t) UCL	0.436
SD	0.671	95% KM (z) UCL	0.435
k star	0.161	95% KM (jackknife) UCL	0.436
Theta star	1.875	95% KM (bootstrap t) UCL	0.527
Nu star	22.16	95% KM (BCA) UCL	0.433
AppChi2	12.46	95% KM (Percentile Bootstrap) UCL	0.446
95% Gamma Approximate UCL	0.536	95% KM (Chebyshev) UCL	0.654
95% Adjusted Gamma UCL	0.542	97.5% KM (Chebyshev) UCL	0.807
		99% KM (Chebyshev) UCL	1.106
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	0.807

Note: DL/2 is not a recommended method.

Result (nitrate)

General Statistics

Number of Valid Data	59	Number of Detected Data	47
Number of Distinct Detected Data	45	Number of Non-Detect Data	12
		Percent Non-Detects	20.34%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.37	Minimum Detected	-0.994
Maximum Detected	220	Maximum Detected	5.394
Mean of Detected	47.35	Mean of Detected	3.185
SD of Detected	56.95	SD of Detected	1.296
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	13
Number treated as Detected	46
Single DL Non-Detect Percentage	22.03%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.7	Lilliefors Test Statistic	0.943
5% Lilliefors Critical Value	0.946	5% Lilliefors Critical Value	0.946
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	37.73	Mean	1.967
SD	54.23	SD	2.7
95% DL/2 (t) UCL	49.53	95% H-Stat (DL/2) UCL	682.2
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	28.47	Mean in Log Scale	2.617
SD	64.4	SD in Log Scale	1.636
95% MLE (t) UCL	42.48	Mean in Original Scale	38.06
95% MLE (Tiku) UCL	42.52	SD in Original Scale	54
		95% Percentile Bootstrap UCL	49.9
		95% BCA Bootstrap UCL	51.67

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.831	Data do not follow a Discernable Distribution (0.05)
Theta Star	56.98	
nu star	78.11	
A-D Test Statistic	1.442	
5% A-D Critical Value	0.785	
K-S Test Statistic	0.785	
5% K-S Critical Value	0.134	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	37.79
Maximum	220	SD	53.72
Mean	37.75	SE of Mean	7.07
Median	18.1	95% KM (t) UCL	49.61
SD	54.22	95% KM (z) UCL	49.42
k star	0.158	95% KM (jackknife) UCL	49.39
Theta star	238.7	95% KM (bootstrap t) UCL	52.86
Nu star	18.66	95% KM (BCA) UCL	50.38
AppChi2	9.87	95% KM (Percentile Bootstrap) UCL	49.8
95% Gamma Approximate UCL	71.37	95% KM (Chebyshev) UCL	68.61
95% Adjusted Gamma UCL	72.55	97.5% KM (Chebyshev) UCL	81.94
		99% KM (Chebyshev) UCL	108.1
		Potential UCLs to Use	
		95% KM (Chebyshev) UCL	68.61

Note: DL/2 is not a recommended method.

Result (nitrate + nitrite)

General Statistics

Number of Valid Data	19	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	4
		Percent Non-Detects	21.05%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.206	Minimum Detected	-1.58
Maximum Detected	1620	Maximum Detected	7.39
Mean of Detected	182.5	Mean of Detected	2.899
SD of Detected	428.6	SD of Detected	2.625
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.482	Shapiro Wilk Test Statistic	0.956
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	144.1	Mean	1.658
SD	385.6	SD	3.385
95% DL/2 (t) UCL	297.5	95% H-Stat (DL/2) UCL	84812
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	76.24	Mean in Log Scale	1.599
SD	436.8	SD in Log Scale	3.508
95% MLE (t) UCL	250	Mean in Original Scale	144.1
95% MLE (Tiku) UCL	246.6	SD in Original Scale	385.6
		95% Percentile Bootstrap UCL	289.7
		95% BCA Bootstrap UCL	394.5

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.284	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	643.3	
nu star	8.51	
A-D Test Statistic	0.637	
5% A-D Critical Value	0.836	
K-S Test Statistic	0.836	
5% K-S Critical Value	0.24	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	1620
Mean	144.1
Median	12.7
SD	385.6
k star	0.131
Theta star	1103
Nu star	4.963
AppChi2	1.135
95% Gamma Approximate UCL	629.9
95% Adjusted Gamma UCL	725.2

Note: DL/2 is not a recommended method.

Nonparametric Statistics	
Kaplan-Meier (KM) Method	
Mean	144.1
SD	375.3
SE of Mean	89.12
95% KM (t) UCL	298.6
95% KM (z) UCL	290.7
95% KM (jackknife) UCL	297.4
95% KM (bootstrap t) UCL	1161
95% KM (BCA) UCL	314.1
95% KM (Percentile Bootstrap) UCL	304.3
95% KM (Chebyshev) UCL	532.6
97.5% KM (Chebyshev) UCL	700.7
99% KM (Chebyshev) UCL	1031
Potential UCLs to Use	
95% KM (Chebyshev) UCL	532.6

Result (n-propylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	69
		Percent Non-Detects	88.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00116	Minimum Detected	-6.759
Maximum Detected	0.014	Maximum Detected	-4.269
Mean of Detected	0.00651	Mean of Detected	-5.317
SD of Detected	0.00448	SD of Detected	0.871
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.928	Lilliefors Test Statistic	0.919
5% Lilliefors Critical Value	0.829	5% Lilliefors Critical Value	0.829
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00119	Mean	-7.337
SD	0.00241	SD	0.786
95% DL/2 (t) UCL	0.00165	95% H-Stat (DL/2) UCL	0.000888
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-9.199
		SD in Log Scale	2.289
		Mean in Original Scale	0.000943
		SD in Original Scale	0.0025
		95% Percentile Bootstrap UCL	0.00141
		95% BCA Bootstrap UCL	0.0016

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.357	Data appear Normal at 5% Significance Level	
Theta Star	0.0048		
nu star	24.42		
A-D Test Statistic	0.319	**Nonparametric Statistics**	
5% A-D Critical Value	0.73	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.73	Mean	0.00178
5% K-S Critical Value	0.283	SD	0.00223
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.000268
		95% KM (t) UCL	0.00222
Assuming Gamma Distribution		95% KM (z) UCL	0.00222
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.00221
Minimum	1E-09	95% KM (bootstrap t) UCL	0.00233
Maximum	0.0688	95% KM (BCA) UCL	0.00597
Mean	0.0347	95% KM (Percentile Bootstrap) UCL	0.00575
Median	0.0358	95% KM (Chebyshev) UCL	0.00294
SD	0.0211	97.5% KM (Chebyshev) UCL	0.00345
k star	1.066	99% KM (Chebyshev) UCL	0.00444
Theta star	0.0326		
Nu star	166.2	**Potential UCLs to Use**	
AppChi2	137.4	95% KM (t) UCL	0.00222
95% Gamma Approximate UCL	0.042	95% KM (Percentile Bootstrap) UCL	0.00575
95% Adjusted Gamma UCL	0.0422		

Note: DL/2 is not a recommended method.

Result (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)

General Statistics

Number of Valid Data	67	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	58
		Percent Non-Detects	86.57%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00287	Minimum Detected	-5.853
Maximum Detected	5.79	Maximum Detected	1.756
Mean of Detected	1.05	Mean of Detected	-1.428
SD of Detected	1.89	SD of Detected	2.167
Minimum Non-Detect	0.0005	Minimum Non-Detect	-7.601
Maximum Non-Detect	0.0005	Maximum Non-Detect	-7.601

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.607	Lilliefors Test Statistic	0.938
5% Lilliefors Critical Value	0.829	5% Lilliefors Critical Value	0.829
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.141	Mean	-7.372
SD	0.75	SD	2.477
95% DL/2 (t) UCL	0.294	95% H-Stat (DL/2) UCL	0.0205
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-10.37
		SD in Log Scale	5.506
		Mean in Original Scale	0.142
		SD in Original Scale	0.75
		95% Percentile Bootstrap UCL	0.307
		95% BCA Bootstrap UCL	0.44

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.367	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	2.862		
nu star	6.602		
A-D Test Statistic	0.423	**Nonparametric Statistics**	
5% A-D Critical Value	0.782	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.782	Mean	0.143
5% K-S Critical Value	0.296	SD	0.744
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0964
		95% KM (t) UCL	0.304
Assuming Gamma Distribution		95% KM (z) UCL	0.302
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.268
Minimum	1E-09	95% KM (bootstrap t) UCL	1.085
Maximum	766.3	95% KM (BCA) UCL	0.405
Mean	183.6	95% KM (Percentile Bootstrap) UCL	0.369
Median	76.81	95% KM (Chebyshev) UCL	0.564
SD	224	97.5% KM (Chebyshev) UCL	0.746
k star	0.253	99% KM (Chebyshev) UCL	1.103
Theta star	725.8		
Nu star	33.9	**Potential UCLs to Use**	
AppChi2	21.59	95% KM (t) UCL	0.304
95% Gamma Approximate UCL	288.4		
95% Adjusted Gamma UCL	291.3		

Note: DL/2 is not a recommended method.

Result (phenanthrene)

General Statistics

Number of Valid Data	78	Number of Detected Data	16
Number of Distinct Detected Data	15	Number of Non-Detect Data	62
		Percent Non-Detects	79.49%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00545	Minimum Detected	-5.212
Maximum Detected	3.75	Maximum Detected	1.322
Mean of Detected	0.456	Mean of Detected	-3.144
SD of Detected	1.115	SD of Detected	2.05
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.46	Lilliefors Test Statistic	0.831
5% Lilliefors Critical Value	0.887	5% Lilliefors Critical Value	0.887
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.416	Mean	-4.501
SD	0.96	SD	2.546
95% DL/2 (t) UCL	0.597	95% H-Stat (DL/2) UCL	0.863
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-8.93
		SD in Log Scale	4.264
		Mean in Original Scale	0.0945
		SD in Original Scale	0.526
		95% Percentile Bootstrap UCL	0.193
		95% BCA Bootstrap UCL	0.241

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.28	Data do not follow a Discernable Distribution (0.05)
Theta Star	1.627	
nu star	8.963	
A-D Test Statistic	2.214	
5% A-D Critical Value	0.84	
K-S Test Statistic	0.84	
5% K-S Critical Value	0.233	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.111
Maximum	375.8	SD	0.557
Mean	41.38	SE of Mean	0.0698
Median	6.952	95% KM (t) UCL	0.228
SD	67.96	95% KM (z) UCL	0.226
k star	0.164	95% KM (jackknife) UCL	0.224
Theta star	252.7	95% KM (bootstrap t) UCL	1.62
Nu star	25.55	95% KM (BCA) UCL	0.256
AppChi2	15.03	95% KM (Percentile Bootstrap) UCL	0.228
95% Gamma Approximate UCL	70.33	95% KM (Chebyshev) UCL	0.416
95% Adjusted Gamma UCL	71.05	97.5% KM (Chebyshev) UCL	0.547
		99% KM (Chebyshev) UCL	0.806
		Potential UCLs to Use	
		97.5% KM (Chebyshev) UCL	0.547

Note: DL/2 is not a recommended method.

Result (phosphorus)

General Statistics

Number of Valid Data	60	Number of Detected Data	24
Number of Distinct Detected Data	18	Number of Non-Detect Data	36
		Percent Non-Detects	60.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.052	Minimum Detected	-2.957
Maximum Detected	1.3	Maximum Detected	0.262
Mean of Detected	0.163	Mean of Detected	-2.24
SD of Detected	0.254	SD of Detected	0.766
Minimum Non-Detect	0.05	Minimum Non-Detect	-2.996
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.434	Lilliefors Test Statistic	0.823
5% Lilliefors Critical Value	0.916	5% Lilliefors Critical Value	0.916
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0802	Mean	-3.109
SD	0.173	SD	0.861
95% DL/2 (t) UCL	0.118	95% H-Stat (DL/2) UCL	0.0664
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.616
		SD in Log Scale	1.407
		Mean in Original Scale	0.074
		SD in Original Scale	0.175
		95% Percentile Bootstrap UCL	0.118
		95% BCA Bootstrap UCL	0.139

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.179	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.138	
nu star	56.59	
A-D Test Statistic	2.34	
5% A-D Critical Value	0.765	
K-S Test Statistic	0.765	
5% K-S Critical Value	0.182	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0964
Maximum	1.3	SD	0.167
Mean	0.232	SE of Mean	0.022
Median	0.144	95% KM (t) UCL	0.133
SD	0.223	95% KM (z) UCL	0.133
k star	0.407	95% KM (jackknife) UCL	0.133
Theta star	0.57	95% KM (bootstrap t) UCL	0.215
Nu star	48.84	95% KM (BCA) UCL	0.137
AppChi2	33.8	95% KM (Percentile Bootstrap) UCL	0.134
95% Gamma Approximate UCL	0.335	95% KM (Chebyshev) UCL	0.192
95% Adjusted Gamma UCL	0.338	97.5% KM (Chebyshev) UCL	0.234
		99% KM (Chebyshev) UCL	0.315
		Potential UCLs to Use	
		95% KM (t) UCL	0.133
		95% KM (% Bootstrap) UCL	0.134

Note: DL/2 is not a recommended method.

Result (potassium)

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		Log-transformed Statistics	
Minimum	53.3	Minimum of Log Data	3.976
Maximum	217	Maximum of Log Data	5.38
Mean	112.5	Mean of log Data	4.651
Median	97.8	SD of log Data	0.396
SD	46.13		
Coefficient of Variation	0.41		
Skewness	1.068		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Test Statistic	0.977
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	136.4	95% H-UCL	144.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	169.3
95% Adjusted-CLT UCL	138.8	97.5% Chebyshev (MVUE) UCL	193.9
95% Modified-t UCL	137.1	99% Chebyshev (MVUE) UCL	242.2

Gamma Distribution Test		Data Distribution
k star (bias corrected)	5.353	Data appear Normal at 5% Significance Level
Theta Star	21.02	
nu star	128.5	
Approximate Chi Square Value (.05)	103.3	Nonparametric Statistics
Adjusted Level of Significance	0.029	95% CLT UCL 134.4
Adjusted Chi Square Value	99.86	95% Jackknife UCL 136.4
		95% Standard Bootstrap UCL 133.7
Anderson-Darling Test Statistic	0.253	95% Bootstrap-t UCL 145.7
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 147.7
Kolmogorov-Smirnov Test Statistic	0.156	95% Percentile Bootstrap UCL 134.3
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 137.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 170.6
		97.5% Chebyshev(Mean, Sd) UCL 195.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 245
95% Approximate Gamma UCL	140	
95% Adjusted Gamma UCL	144.8	

Potential UCL to Use	Use 95% Student's-t UCL 136.4

Result (pyrene)

General Statistics

Number of Valid Data	78	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	70
		Percent Non-Detects	89.74%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0097	Minimum Detected	-4.636
Maximum Detected	0.378	Maximum Detected	-0.973
Mean of Detected	0.103	Mean of Detected	-3.296
SD of Detected	0.154	SD of Detected	1.46
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	5	Maximum Non-Detect	1.609

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	78
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough tp draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.642	Lilliefors Test Statistic	0.812
5% Lilliefors Critical Value	0.818	5% Lilliefors Critical Value	0.818
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.621	Mean	-4.012
SD	1.074	SD	2.964
95% DL/2 (t) UCL	0.824	95% H-Stat (DL/2) UCL	8.078
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-9.228
		SD in Log Scale	3.541
		Mean in Original Scale	0.0117
		SD in Original Scale	0.0561
		95% Percentile Bootstrap UCL	0.0241
		95% BCA Bootstrap UCL	0.029

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.462	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.222	
nu star	7.388	
A-D Test Statistic	1.031	
5% A-D Critical Value	0.755	
K-S Test Statistic	0.755	
5% K-S Critical Value	0.307	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0223
Maximum	26.51	SD	0.0619
Mean	6.577	SE of Mean	0.00861
Median	4.101	95% KM (t) UCL	0.0366
SD	6.942	95% KM (z) UCL	0.0365
k star	0.339	95% KM (jackknife) UCL	0.0347
Theta star	19.41	95% KM (bootstrap t) UCL	0.174
Nu star	52.86	95% KM (BCA) UCL	0.0469
AppChi2	37.16	95% KM (Percentile Bootstrap) UCL	0.0391
95% Gamma Approximate UCL	9.357	95% KM (Chebyshev) UCL	0.0598
95% Adjusted Gamma UCL	9.419	97.5% KM (Chebyshev) UCL	0.0761
		99% KM (Chebyshev) UCL	0.108
		Potential UCLs to Use	
		95% KM (BCA) UCL	0.0469

Note: DL/2 is not a recommended method.

Result (sec-butylbenzene)

General Statistics

Number of Valid Data	78	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	63
		Percent Non-Detects	80.77%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00115	Minimum Detected	-6.768
Maximum Detected	0.0103	Maximum Detected	-4.576
Mean of Detected	0.00429	Mean of Detected	-5.691
SD of Detected	0.00289	SD of Detected	0.749
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.883
5% Lilliefors Critical Value	0.881

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.891
5% Lilliefors Critical Value	0.881

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00123
SD	0.00195
95% DL/2 (t) UCL	0.0016
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.234
SD	0.822
95% H-Stat (DL/2) UCL	0.000983
Log ROS Method	
Mean in Log Scale	-8.127
SD in Log Scale	1.7
Mean in Original Scale	0.00108
SD in Original Scale	0.00202
95% Percentile Bootstrap UCL	0.00148
95% BCA Bootstrap UCL	0.00155

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.828
Theta Star	0.00235
nu star	54.84
A-D Test Statistic	0.682
5% A-D Critical Value	0.746
K-S Test Statistic	0.746
5% K-S Critical Value	0.224

Data follow Appr. Gamma Distribution at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.0216
Mean	0.0112
Median	0.0114
SD	0.00649
k star	1.203
Theta star	0.00933
Nu star	187.7
AppChi2	157
95% Gamma Approximate UCL	0.0134
95% Adjusted Gamma UCL	0.0135

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00175
SD	0.00174
SE of Mean	0.000204
95% KM (t) UCL	0.00209
95% KM (z) UCL	0.00209
95% KM (jackknife) UCL	0.00203
95% KM (bootstrap t) UCL	0.00213
95% KM (BCA) UCL	0.00237
95% KM (Percentile Bootstrap) UCL	0.0022
95% KM (Chebyshev) UCL	0.00265
97.5% KM (Chebyshev) UCL	0.00303
99% KM (Chebyshev) UCL	0.00379

Potential UCLs to Use

95% KM (t) UCL	0.00209
95% KM (Percentile Bootstrap) UCL	0.0022

Result (selenium)

General Statistics

Number of Valid Data	70	Number of Detected Data	25
Number of Distinct Detected Data	23	Number of Non-Detect Data	45
		Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.025	Minimum Detected	-3.689
Maximum Detected	0.285	Maximum Detected	-1.255
Mean of Detected	0.109	Mean of Detected	-2.455
SD of Detected	0.0795	SD of Detected	0.707
Minimum Non-Detect	0.01	Minimum Non-Detect	-4.605
Maximum Non-Detect	0.05	Maximum Non-Detect	-2.996

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	50
Number treated as Detected	20
Single DL Non-Detect Percentage	71.43%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.838	Lilliefors Test Statistic	0.956
5% Lilliefors Critical Value	0.918	5% Lilliefors Critical Value	0.918
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0451	Mean	-4.02
SD	0.0675	SD	1.342
95% DL/2 (t) UCL	0.0585	95% H-Stat (DL/2) UCL	0.0543
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.859
		SD in Log Scale	1.309
		Mean in Original Scale	0.0472
		SD in Original Scale	0.0664
		95% Percentile Bootstrap UCL	0.0612
		95% BCA Bootstrap UCL	0.0629

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.992	Data appear Gamma Distributed at 5% Significance Level
Theta Star	0.0548	
nu star	99.58	
A-D Test Statistic	0.612	
5% A-D Critical Value	0.755	
K-S Test Statistic	0.755	
5% K-S Critical Value	0.177	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0552
Maximum	0.285	SD	0.0616
Mean	0.122	SE of Mean	0.00751
Median	0.115	95% KM (t) UCL	0.0677
SD	0.0735	95% KM (z) UCL	0.0676
k star	0.797	95% KM (jackknife) UCL	0.0655
Theta star	0.153	95% KM (bootstrap t) UCL	0.0702
Nu star	111.5	95% KM (BCA) UCL	0.0747
AppChi2	88.15	95% KM (Percentile Bootstrap) UCL	0.0719
95% Gamma Approximate UCL	0.154	95% KM (Chebyshev) UCL	0.088
95% Adjusted Gamma UCL	0.155	97.5% KM (Chebyshev) UCL	0.102
		99% KM (Chebyshev) UCL	0.13
		Potential UCLs to Use	
		95% KM (t) UCL	0.0677

Note: DL/2 is not a recommended method.

Result (sodium)

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	20

Raw Statistics		Log-transformed Statistics	
Minimum	246	Minimum of Log Data	5.505
Maximum	7470	Maximum of Log Data	8.919
Mean	3049	Mean of log Data	7.767
Median	2490	SD of log Data	0.802
SD	2112		
Coefficient of Variation	0.693		
Skewness	0.989		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.855	Shapiro Wilk Test Statistic	0.916
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	3844	95% H-UCL	4929
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5844
95% Adjusted-CLT UCL	3914	97.5% Chebyshev (MVUE) UCL	6991
95% Modified-t UCL	3861	99% Chebyshev (MVUE) UCL	9242

Gamma Distribution Test		Data Distribution
k star (bias corrected)	1.839	Data appear Gamma Distributed at 5% Significance Level
Theta Star	1658	
nu star	77.22	
Approximate Chi Square Value (.05)	57.98	**Nonparametric Statistics**
Adjusted Level of Significance	0.0383	95% CLT UCL 3807
Adjusted Chi Square Value	56.7	95% Jackknife UCL 3844
		95% Standard Bootstrap UCL 3794
Anderson-Darling Test Statistic	0.58	95% Bootstrap-t UCL 3950
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL 3898
Kolmogorov-Smirnov Test Statistic	0.179	95% Percentile Bootstrap UCL 3837
Kolmogorov-Smirnov 5% Critical Value	0.192	95% BCA Bootstrap UCL 3847
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 5058
		97.5% Chebyshev(Mean, Sd) UCL 5927
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 7634
95% Approximate Gamma UCL	4061	
95% Adjusted Gamma UCL	4153	

Potential UCL to Use	Use 95% Approximate Gamma UCL 4061

Result (strontium)

General Statistics

Number of Valid Observations	52	Number of Distinct Observations	49

Raw Statistics		Log-transformed Statistics	
Minimum	2.78	Minimum of Log Data	1.022
Maximum	18.5	Maximum of Log Data	2.918
Mean	8.016	Mean of log Data	1.944
Median	6.605	SD of log Data	0.525
SD	4.378		
Coefficient of Variation	0.546		
Skewness	0.917		

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.179
Lilliefors Critical Value	0.123

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.105
Lilliefors Critical Value	0.123

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	9.033

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	9.097
95% Modified-t UCL	9.046

Assuming Lognormal Distribution

95% H-UCL	9.212
95% Chebyshev (MVUE) UCL	10.67
97.5% Chebyshev (MVUE) UCL	11.83
99% Chebyshev (MVUE) UCL	14.1

Gamma Distribution Test

k star (bias corrected)	3.591
Theta Star	2.232
nu star	373.5
Approximate Chi Square Value (.05)	329.7
Adjusted Level of Significance	0.0454
Adjusted Chi Square Value	328.6
Anderson-Darling Test Statistic	1.098
Anderson-Darling 5% Critical Value	0.754
Kolmogorov-Smirnov Test Statistic	0.123
Kolmogorov-Smirnov 5% Critical Value	0.124

Data follow Appr. Gamma Distribution at 5% Significance Level

Data Distribution

Data Follow Appr. Gamma Distribution at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	9.014
95% Jackknife UCL	9.033
95% Standard Bootstrap UCL	8.987
95% Bootstrap-t UCL	9.106
95% Hall's Bootstrap UCL	9.063
95% Percentile Bootstrap UCL	8.953
95% BCA Bootstrap UCL	9.054
95% Chebyshev(Mean, Sd) UCL	10.66
97.5% Chebyshev(Mean, Sd) UCL	11.81
99% Chebyshev(Mean, Sd) UCL	14.06

Assuming Gamma Distribution

95% Approximate Gamma UCL	9.08
95% Adjusted Gamma UCL	9.113

Potential UCL to Use

Use 95% Approximate Gamma UCL 9.08

Result (sulfate)

General Statistics

Number of Valid Observations	78	Number of Distinct Observations	71

Raw Statistics

Minimum	72.6
Maximum	14400
Mean	5289
Median	4260
SD	3389
Coefficient of Variation	0.641
Skewness	1.36

Log-transformed Statistics

Minimum of Log Data	4.285
Maximum of Log Data	9.575
Mean of log Data	8.357
SD of log Data	0.768

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.209
Lilliefors Critical Value	0.1

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.177
Lilliefors Critical Value	0.1

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	5928

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	5983
95% Modified-t UCL	5938

Assuming Lognormal Distribution

95% H-UCL	6837
95% Chebyshev (MVUE) UCL	8108
97.5% Chebyshev (MVUE) UCL	9153
99% Chebyshev (MVUE) UCL	11207

Gamma Distribution Test

k star (bias corrected)	2.377
Theta Star	2226
nu star	370.7
Approximate Chi Square Value (.05)	327.1
Adjusted Level of Significance	0.0469
Adjusted Chi Square Value	326.3
Anderson-Darling Test Statistic	2.016
Anderson-Darling 5% Critical Value	0.761
Kolmogorov-Smirnov Test Statistic	0.133
Kolmogorov-Smirnov 5% Critical Value	0.102

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	5994
95% Adjusted Gamma UCL	6008

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	5920
95% Jackknife UCL	5928
95% Standard Bootstrap UCL	5910
95% Bootstrap-t UCL	6007
95% Hall's Bootstrap UCL	5976
95% Percentile Bootstrap UCL	5913
95% BCA Bootstrap UCL	5951
95% Chebyshev(Mean, Sd) UCL	6962
97.5% Chebyshev(Mean, Sd) UCL	7686
99% Chebyshev(Mean, Sd) UCL	9108

Potential UCL to Use

Use 95% Chebyshev (Mean, Sd) UCL 6962

Result (trichloroethylene)

General Statistics

Number of Valid Data	78	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	61
		Percent Non-Detects	78.21%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.00115	Minimum Detected	-6.768
Maximum Detected	0.0399	Maximum Detected	-3.221
Mean of Detected	0.00836	Mean of Detected	-5.225
SD of Detected	0.00941	SD of Detected	0.961
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.001	Maximum Non-Detect	-6.908

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.686
5% Lilliefors Critical Value	0.892

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.00221
SD	0.00539
95% DL/2 (t) UCL	0.00323
Maximum Likelihood Estimate(MLE) Method	N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.958
5% Lilliefors Critical Value	0.892

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-7.083
SD	1.08
95% H-Stat (DL/2) UCL	0.00145
Log ROS Method	
Mean in Log Scale	-8.179
SD in Log Scale	2.165
Mean in Original Scale	0.00206
SD in Original Scale	0.00545
95% Percentile Bootstrap UCL	0.00313
95% BCA Bootstrap UCL	0.00362

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.089
Theta Star	0.00768
nu star	37.03
A-D Test Statistic	0.512
5% A-D Critical Value	0.76
K-S Test Statistic	0.76
5% K-S Critical Value	0.214

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	1E-09
Maximum	0.0751
Mean	0.031
Median	0.0281
SD	0.0239
k star	0.57
Theta star	0.0543
Nu star	88.97
AppChi2	68.22
95% Gamma Approximate UCL	0.0404
95% Adjusted Gamma UCL	0.0406

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.00272
SD	0.0052
SE of Mean	0.000607
95% KM (t) UCL	0.00373
95% KM (z) UCL	0.00372
95% KM (jackknife) UCL	0.00362
95% KM (bootstrap t) UCL	0.00455
95% KM (BCA) UCL	0.00447
95% KM (Percentile Bootstrap) UCL	0.00403
95% KM (Chebyshev) UCL	0.00537
97.5% KM (Chebyshev) UCL	0.00651
99% KM (Chebyshev) UCL	0.00876

Potential UCLs to Use

95% KM (t) UCL	0.00373

Result (vanadium (fume or dust))

General Statistics

Number of Valid Data	69	Number of Detected Data	46
Number of Distinct Detected Data	33	Number of Non-Detect Data	23
		Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.162	Maximum Detected	-1.82
Mean of Detected	0.0347	Mean of Detected	-3.671
SD of Detected	0.031	SD of Detected	0.801
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	43
Number treated as Detected	26
Single DL Non-Detect Percentage	62.32%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.766	Lilliefors Test Statistic	0.972
5% Lilliefors Critical Value	0.945	5% Lilliefors Critical Value	0.945
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0258	Mean	-4.141
SD	0.0284	SD	1.043
95% DL/2 (t) UCL	0.0315	95% H-Stat (DL/2) UCL	0.0316
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.00671	Mean in Log Scale	-4.155
SD	0.0467	SD in Log Scale	1.021
95% MLE (t) UCL	0.0161	Mean in Original Scale	0.0256
95% MLE (Tiku) UCL	0.0207	SD in Original Scale	0.0285
		95% Percentile Bootstrap UCL	0.0316
		95% BCA Bootstrap UCL	0.0327

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.66	Data Follow Appr. Gamma Distribution at 5% Significance Level
Theta Star	0.0209	
nu star	152.7	
A-D Test Statistic	0.739	
5% A-D Critical Value	0.764	
K-S Test Statistic	0.764	
5% K-S Critical Value	0.132	
Data follow Appr. Gamma Distribution at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.026
Maximum	0.162	SD	0.0281
Mean	0.031	SE of Mean	0.00345
Median	0.026	95% KM (t) UCL	0.0317
SD	0.0277	95% KM (z) UCL	0.0316
k star	0.957	95% KM (jackknife) UCL	0.0317
Theta star	0.0323	95% KM (bootstrap t) UCL	0.0337
Nu star	132.1	95% KM (BCA) UCL	0.0322
AppChi2	106.5	95% KM (Percentile Bootstrap) UCL	0.0322
95% Gamma Approximate UCL	0.0384	95% KM (Chebyshev) UCL	0.041
95% Adjusted Gamma UCL	0.0386	97.5% KM (Chebyshev) UCL	0.0475
		99% KM (Chebyshev) UCL	0.0603
		Potential UCLs to Use	
		95% KM (Percentile Bootstrap) UCL	0.0322

Note: DL/2 is not a recommended method.

Result (zinc)

General Statistics

Number of Valid Data	78	Number of Detected Data	34
Number of Distinct Detected Data	23	Number of Non-Detect Data	44
		Percent Non-Detects	56.41%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.005	Minimum Detected	-5.298
Maximum Detected	0.278	Maximum Detected	-1.28
Mean of Detected	0.0358	Mean of Detected	-3.939
SD of Detected	0.0563	SD of Detected	0.982
Minimum Non-Detect	0.005	Minimum Non-Detect	-5.298
Maximum Non-Detect	0.025	Maximum Non-Detect	-3.689

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	68
Number treated as Detected	10
Single DL Non-Detect Percentage	87.18%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.546	Lilliefors Test Statistic	0.901
5% Lilliefors Critical Value	0.933	5% Lilliefors Critical Value	0.933
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0184	Mean	-4.836
SD	0.04	SD	1.127
95% DL/2 (t) UCL	0.026	95% H-Stat (DL/2) UCL	0.016
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.275
		SD in Log Scale	1.528
		Mean in Original Scale	0.0172
		SD in Original Scale	0.0404
		95% Percentile Bootstrap UCL	0.0253
		95% BCA Bootstrap UCL	0.0287

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.888	Data do not follow a Discernable Distribution (0.05)
Theta Star	0.0403	
nu star	60.4	
A-D Test Statistic	2.787	
5% A-D Critical Value	0.778	
K-S Test Statistic	0.778	
5% K-S Critical Value	0.156	
Data not Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	1E-09	Mean	0.0188
Maximum	0.278	SD	0.0396
Mean	0.0358	SE of Mean	0.00455
Median	0.021	95% KM (t) UCL	0.0264
SD	0.0435	95% KM (z) UCL	0.0263
k star	0.351	95% KM (jackknife) UCL	0.0264
Theta star	0.102	95% KM (bootstrap t) UCL	0.0339
Nu star	54.8	95% KM (BCA) UCL	0.0276
AppChi2	38.79	95% KM (Percentile Bootstrap) UCL	0.0268
95% Gamma Approximate UCL	0.0505	95% KM (Chebyshev) UCL	0.0387
95% Adjusted Gamma UCL	0.0508	97.5% KM (Chebyshev) UCL	0.0473
		99% KM (Chebyshev) UCL	0.0642
		Potential UCLs to Use	
		95% KM (t) UCL	0.0264
		95% KM (% Bootstrap) UCL	0.0268

Note: DL/2 is not a recommended method.

ARCADIS

Attachment D

Risk Assessment Data Sets

Notes for E.3.Attachment 1
Risk Assessment Dataset
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

% =	Percentage
< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyl
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound

Table E.3.Attachment 1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	DRW-17 64 - 69 05/14/97	DRW-17 69 - 74 05/14/97	HLSF-SB-010 10 - 11 11/01/06	HLSF-SB-010 20 - 22 11/01/06	HLSF-SB-010 30 - 31 11/01/06	HLSF-SB-010 40 - 41 11/01/06	HLSF-SB-010 49 - 50 11/01/06
Metals								
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	NA	2.17	13.4	5.6	17.3	13
Hexavalent Chromium	mg/kg	NA	NA	<5.00	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	3.88	34.1	18.5	50.7	43.3
SVOCs								
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.00640	<0.00620	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0130	<0.0120	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA

Table E.3.Attachment 1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	DRW-17 64 - 69 05/14/97	DRW-17 69 - 74 05/14/97	HLSF-SB-010 10 - 11 11/01/06	HLSF-SB-010 20 - 22 11/01/06	HLSF-SB-010 30 - 31 11/01/06	HLSF-SB-010 40 - 41 11/01/06	HLSF-SB-010 49 - 50 11/01/06
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.00640	<0.00620	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
TPHs								
DRO	mg/kg	NA	NA	<50.0	67.3	<50.0	<50.0	<50.0
GRO	mg/kg	NA	NA	<1.00	2.04	<1.00	<1.00	<1.00
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA
VOCs								
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.3.Attachment 1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	DRW-17 64 - 69 05/14/97	DRW-17 69 - 74 05/14/97	HLSF-SB-010 10 - 11 11/01/06	HLSF-SB-010 20 - 22 11/01/06	HLSF-SB-010 30 - 31 11/01/06	HLSF-SB-010 40 - 41 11/01/06	HLSF-SB-010 49 - 50 11/01/06
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.00640	<0.00620	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0130	<0.0120	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.0130	<0.0120	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0130	<0.0120	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0130	<0.0120	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0130	<0.0120	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.00640	<0.00620	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STI	mg/kg	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	<0.00640	<0.00620	<0.0100	0.0133	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0130	<0.0120	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.3.Attachment 1
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 25
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	DRW-17 64 - 69 05/14/97	DRW-17 69 - 74 05/14/97	HLSF-SB-010 10 - 11 11/01/06	HLSF-SB-010 20 - 22 11/01/06	HLSF-SB-010 30 - 31 11/01/06	HLSF-SB-010 40 - 41 11/01/06	HLSF-SB-010 49 - 50 11/01/06
MTBE	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.00640	<0.00620	<0.0500	0.159	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	<0.00640	<0.00620	<0.0100	0.0596	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	<0.00640	<0.00620	<0.0100	0.0424	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.00640	<0.00620	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0130	<0.0120	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00640	<0.00620	NA	NA	NA	NA	NA

Notes for E.4.Attachments 1-4
Risk Assessment Datasets
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
B=	Laboratory qualifier, analyte found in associated blank
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
SVOC =	Semi-volatile Organic Compound
TPH =	Total petroleum hydrocarbon
VOC =	Volatile Organic Compound
Z=	Laboratory qualifier, analysis performed outside of holding time

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG1-CS-001	LAG1-CS-002	LAG1-CS-003	LAG1-CS-004	LAG1-CS-005	LAG2-CS-001	LAG2-CS-002	LAG2-CS-003	LAG2-CS-004	LAG2-CS-005	LAG3-CS-001	LAG3-CS-002	LAG3-CS-003	LAG3-CS-004
Sample Depth(ft):		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08
Field Notes:	Units	LAG1-CS-001	LAG1-CS-002	LAG1-CS-003	LAG1-CS-004	LAG1-CS-005	LAG2-CS-001	LAG2-CS-002	LAG2-CS-003	LAG2-CS-004	LAG2-CS-005	LAG3-CS-001	LAG3-CS-002	LAG3-CS-003	LAG3-CS-004
Metals															
Antimony	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	2.62	NA	<2.00
Arsenic	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Barium	mg/kg	NA	40.9	NA	21.4 [33.9]	NA	19.1	NA	18.6	NA	21.9	NA	15.2	NA	13.3
Beryllium	mg/kg	NA	<0.500	NA	<0.500 [<0.500]	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500
Cadmium	mg/kg	NA	1.28	NA	<0.200 [<0.200]	NA	<0.200	NA	0.245	NA	<0.200	NA	<0.200	NA	<0.200
Chromium	mg/kg	2.83	12.1	2.02	1.44 [2.59]	2.81	1.82	1.73	1.6	1.85	1.83	0.524	1.43	1.22	1.27
Cobalt	mg/kg	NA	1.23	NA	0.541 [0.949]	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500
Copper	mg/kg	NA	330	NA	2.71 [4.41]	NA	34.4	NA	26	NA	27.2	NA	1.41	NA	2.33
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Lead	mg/kg	NA	29.9	NA	<1.00 [<1.00]	NA	2.32	NA	3.15	NA	2.67	NA	<1.00	NA	<1.00
Mercury	mg/kg	NA	0.165	NA	<0.0400 [<0.0400]	NA	<0.0400	NA	<0.0400	NA	<0.0400	NA	<0.0400	NA	<0.0400
Nickel	mg/kg	NA	4.74	NA	0.774 [1.44]	NA	0.856	NA	0.723	NA	1.01	NA	0.67	NA	<0.500
Selenium	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Silver	mg/kg	NA	<0.250	NA	<0.250 [<0.250]	NA	<0.250	NA	<0.250	NA	<0.250	NA	<0.250	NA	<0.250
Thallium	mg/kg	NA	<10.0	NA	<10.0 [<10.0]	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0
Tin	mg/kg	NA	5.74	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Vanadium	mg/kg	NA	10.5	NA	3.78 [6.10]	NA	2.76	NA	2.53	NA	3.04	NA	2.07	NA	1.57
Zinc	mg/kg	NA	222	NA	6.37 [10.1]	NA	41.7	NA	29.9	NA	33.9	NA	5.58	NA	6.49
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a'-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG1-CS-001 0 03/11/08 LAG1-CS-001	LAG1-CS-002 0 03/11/08 LAG1-CS-002	LAG1-CS-003 0 03/11/08 LAG1-CS-003	LAG1-CS-004 0 03/11/08 LAG1-CS-004	LAG1-CS-005 0 03/11/08 LAG1-CS-005	LAG2-CS-001 0 03/11/08 LAG2-CS-001	LAG2-CS-002 0 03/11/08 LAG2-CS-002	LAG2-CS-003 0 03/11/08 LAG2-CS-003	LAG2-CS-004 0 03/11/08 LAG2-CS-004	LAG2-CS-005 0 03/11/08 LAG2-CS-005	LAG3-CS-001 0 03/11/08 LAG3-CS-001	LAG3-CS-002 0 03/11/08 LAG3-CS-002	LAG3-CS-003 0 03/11/08 LAG3-CS-003	LAG3-CS-004 0 03/11/08 LAG3-CS-004
Acetophenone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis (2-Chloroisopropyl) Ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,j)acridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG1-CS-001 0 03/11/08 LAG1-CS-001	LAG1-CS-002 0 03/11/08 LAG1-CS-002	LAG1-CS-003 0 03/11/08 LAG1-CS-003	LAG1-CS-004 0 03/11/08 LAG1-CS-004	LAG1-CS-005 0 03/11/08 LAG1-CS-005	LAG2-CS-001 0 03/11/08 LAG2-CS-001	LAG2-CS-002 0 03/11/08 LAG2-CS-002	LAG2-CS-003 0 03/11/08 LAG2-CS-003	LAG2-CS-004 0 03/11/08 LAG2-CS-004	LAG2-CS-005 0 03/11/08 LAG2-CS-005	LAG3-CS-001 0 03/11/08 LAG3-CS-001	LAG3-CS-002 0 03/11/08 LAG3-CS-002	LAG3-CS-003 0 03/11/08 LAG3-CS-003	LAG3-CS-004 0 03/11/08 LAG3-CS-004
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroethylvinylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Metals															
Antimony	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	<2.79	<2.78	<2.77	<2.76	<2.79	<3.17	<2.96	<2.82
Barium	mg/kg	NA	11.1	NA	10.3	NA	5.54	30	30.1	49.2	39.8	31.2	72.2	79.6	46.8
Beryllium	mg/kg	NA	<0.500	NA	<0.500	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	NA	<0.200	NA	<0.200	NA	<0.200	<0.279	<0.278	<0.277	<0.276	<0.279	0.0809 J	0.140 J	<0.282
Chromium	mg/kg	1.17	1.38	4.18 [2.22]	4.93	1.03	1.9	2.61	2.83	3.75	3.68	3.23	6.12	6.63	3.4
Cobalt	mg/kg	NA	<0.500	NA	<0.500	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	2.15	NA	2.63	NA	1.86	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<2.00	<2.05	<2.03	<2.16	<2.01	<2.37	<2.08	<1.85
Lead	mg/kg	NA	<1.00	NA	<1.00	NA	<1.00	<1.39	<1.39	<1.38	<1.38	<1.39	<1.59	<1.48	<1.41
Mercury	mg/kg	NA	<0.0400	NA	<0.0400	NA	<0.0400	<0.0348	0.00414 J	<0.0346	<0.0346	0.00412 J	0.0888	0.092	0.00592 J
Nickel	mg/kg	NA	<0.500	NA	0.779	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	<2.79	<2.78	<2.77	<2.76	<2.79	<3.17	<2.96	<2.82
Silver	mg/kg	NA	<0.250	NA	<0.250	NA	<0.250	<0.348	<0.347	<0.346	<0.346	<0.348	<0.396	<0.370	<0.352
Thallium	mg/kg	NA	<10.0	NA	<10.0	NA	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	1.22	NA	1.4	NA	0.875	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	7.76	NA	7.12	NA	4.98	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,3,4,6-Tetrachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4,5-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dimethylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,6-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,6-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Chlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Picoline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3,3'-Dichlorobenzidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Methylcholanthrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Methylphenol/4-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4,6-Dinitro-2-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Bromophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chloro-3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chloroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chlorophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
7,12-Dimethylbenz(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
a,a'-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Acenaphthylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Acetophenone	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzoic Acid	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzyl Alcohol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Bis (2-Chloroisopropyl) Ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Chloroethoxy)methane	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Chloroethyl)ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Ethylhexyl)phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Butylbenzylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Chrysene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenz(a,j)acridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenzo(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenzofuran	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dimethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Di-n-Butylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Di-n-Octylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Ethyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Fluorene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachlorocyclopentadiene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Isophorone	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Methyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Nitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitrosodimethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitroso-di-n-butylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitroso-di-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitrosopiperidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
p-Dimethylaminoazobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachloronitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenacetin	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenanthrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pronamide	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pyridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,2,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,2-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,3-Trichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,4-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dibromo-3-chloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,3-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Butanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Chloroethylvinylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Hexanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
4-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
4-Methyl-2-pentanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Acetone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0070	0.0052 J	0.036	<0.0069	<0.0070	<0.0079	<0.0074	<0.0071
Acrylonitrile	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Benzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromodichloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromoform	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Carbon Disulfide	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	0.0025 J	<0.0028	0.0018 J	<0.0032	<0.0030	<0.0028
Carbon Tetrachloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloroform	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dibromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dibromomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dichlorodifluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Ethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0056	<0.0056	<0.0055	<0.0055	<0.0056	<0.0063	<0.0059	<0.0056
Methyl tert-butyl ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Methylene Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0070	<0.0069	<0.0069	<0.0069	<0.0070	<0.0079	<0.0074	<0.0071
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
p-Isopropyltoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Styrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Tetrachloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Toluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,4-Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Trichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Trichlorofluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Metals															
Antimony	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	<2.90	<2.48	<2.65	<2.64	<2.75	<2.95	<2.26 [<2.75]	<2.95	<2.72	1.07 J	<2.75	<2.66	<2.68	1.77 J
Barium	mg/kg	63.1	105	41	42.4	43.1	39.1	29.6 [32.6]	59.5	66	40.9	25.8	50.8	50.8	36.3
Beryllium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	<0.290	2.08	<0.265	<0.264	<0.275	<0.295	<0.226 [<0.275]	0.218 J	<0.272	<0.278	<0.275	<0.266	<0.268	<0.273
Chromium	mg/kg	23.4	24.6	4.66	11.8	2.42	4.59	2.83 [2.95]	4.04	4.62	3.7	1.23	3.1	3.55	2.89
Cobalt	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<2.03	<1.76	<1.96	<1.91	<2.00	<1.98	<2.00 [<1.99]	<2.17	<2.08	<1.96	<1.99	<2.11	<1.94	<1.97
Lead	mg/kg	<1.45	62.5	<1.33	<1.32	<1.38	<1.48	<1.13 [<1.38]	1.18 J	<1.36	<1.39	<1.38	<1.33	<1.34	<1.36
Mercury	mg/kg	0.209	1.44	<0.0332	<0.0330	<0.0344	<0.0369	<0.0283 [<0.0344]	0.133	0.0684	0.0846	0.0989	0.0527	<0.0335	<0.0341 Z
Nickel	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<2.90	<2.48	<2.65	<2.64	<2.75	<2.95	<2.26 [<2.75]	1.49 J	<2.72	<2.78	<2.75	<2.66	<2.68	<2.73
Silver	mg/kg	<0.363	<0.310	<0.332	<0.330	<0.344	<0.369	<0.283 [<0.344]	<0.369	<0.340	<0.348	<0.344	<0.332	<0.335	<0.341
Thallium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
1-Chloronaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
1-Methylnaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.067 J	<17	<0.35	<17	<17	<0.34	<0.34
1-Naphthylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,3,4,6-Tetrachlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4,5-Trichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4,6-Trichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dimethylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dinitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dinitrotoluene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,6-Dichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,6-Dinitrotoluene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Chloronaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Chlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Methylnaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Naphthylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Nitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Picoline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3,3'-Dichlorobenzidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Methylcholanthrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Methylphenol/4-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4,6-Dinitro-2-methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Aminobiphenyl	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Bromophenyl-phenylether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chloro-3-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chloroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chlorophenyl-phenylether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Nitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
7,12-Dimethylbenz(a)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
a,a'-Dimethylphenethylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Acenaphthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Acenaphthylene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Acetophenone	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Aniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(a)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(a)pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(b)fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(g,h,i)perylene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(k)fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzoic Acid	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzyl Alcohol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Bis (2-Chloroisopropyl) Ether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Chloroethoxy)methane	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Chloroethyl)ether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Ethylhexyl)phthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Butylbenzylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Chrysene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenz(a,j)acridine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenzo(a,h)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenzofuran	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diethylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dimethylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Di-n-Butylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	0.042 J	<17	<17	<0.34	<0.34
Di-n-Octylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diphenylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diphenylhydrazine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Ethyl Methanesulfonate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Fluorene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachlorocyclopentadiene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachloroethane	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Indeno(1,2,3-cd)pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Isophorone	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.53	<17	0.16 J	<17	<17	<0.34	<0.34
Methyl Methanesulfonate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Nitrobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitrosodimethylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitroso-di-n-butylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitroso-di-n-propylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitrosopiperidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
p-Dimethylaminoazobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachloronitrobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Phenacetin	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Phenanthrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.53	<17	<0.35	<17	<17	<0.34	<0.34
Phenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pronamide	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pyridine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34 Z
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,1-Trichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,2,2-Tetrachloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,2-Trichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1-Dichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
1,1-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,3-Trichlorobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,3-Trichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,4-Trimethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dibromo-3-chloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dibromoethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,3,5-Trimethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,3-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2,2-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Butanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Chloroethylvinylether	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Chlorotoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Hexanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
4-Chlorotoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
4-Methyl-2-pentanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Acetone	mg/kg	<0.0073	<0.0062	<0.0066	<0.0066	<0.0069	<0.0067	<0.0057 [<0.0069]	<0.0074	<0.0068	<0.0070	<0.0069	<0.0074	<0.0067	<0.0068
Acrylonitrile	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Benzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromochloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromodichloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromoform	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Carbon Disulfide	mg/kg	<0.0029	<0.0025	0.0047	0.0043	0.0048	0.0028	0.012 [0.015]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Carbon Tetrachloride	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chlorobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloroform	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
cis-1,2-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
cis-1,3-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dibromochloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dibromomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dichlorodifluoromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Ethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Iodomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Isopropylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
m,p-Xylene	mg/kg	<0.0058	<0.0050	<0.0053	<0.0053	<0.0055	<0.0053	<0.0045 [<0.0055]	<0.0059	<0.0055	<0.0056	<0.0055	<0.0059	<0.0054	<0.0055
Methyl tert-butyl ether	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Methylene Chloride	mg/kg	<0.0073	<0.0062	<0.0066	<0.0066	<0.0069	<0.0067	<0.0057 [<0.0069]	<0.0074	<0.0068	0.0064 JB	<0.0069	<0.0074	0.0049 JB	<0.0068
n-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
n-Propylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
o-Xylene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
p-Isopropyltoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
sec-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Styrene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
tert-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Tetrachloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Toluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,2-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,3-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,4-Dichloro-2-butene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Trichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Trichlorofluoromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Vinyl Chloride	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Metals															
Antimony	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	<2.69	<2.77	<2.70	<3.28	<3.37	<3.60	<3.00	<3.21 [0.903 J]	<2.67	<2.72	<2.72	<2.73	<2.78	<3.76
Barium	mg/kg	56.3	20.1	73.5	28.2	31.3	50	53.7	54.4 [61.5]	14	35	44.3	56	51	81.5
Beryllium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	<0.269	<0.277	<0.270	<0.328	<0.337	<0.360	<0.300	<0.321 [<0.312]	<0.267	<0.272	<0.272	<0.273	<0.278	<0.376
Chromium	mg/kg	4.13	1.61	4.35	1.79	1.9	4.37	4.24	4.74 [6.00]	2.16	2.36	3.06	4.23	2.2	11
Cobalt	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.94	<2.06	<1.96	<1.70	<2.49	<1.58	<1.86	<1.56 [<1.99]	<1.86	<2.03	<1.98	<1.82	<2.01	<19.3
Lead	mg/kg	<1.34	<1.38	1.36	<1.64	<1.68	<1.80	<1.50	<1.60 [<1.56]	<1.33	<1.36	<1.36	<1.36	<1.39	<1.88
Mercury	mg/kg	<0.0336	<0.0346 Z	<0.0338	0.00831 J	0.00774 J	<0.0450	0.0339 J	0.00889 J [0.0108 J]	<0.0334	<0.0341	<0.0340	<0.0341	<0.0348	0.00706 J
Nickel	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<2.69	<2.77	<2.70	2.33 J	<3.37	<3.60	<3.00	<3.21 [<3.12]	<2.67	<2.72	<2.72	<2.73	<2.78	<3.76
Silver	mg/kg	<0.336	<0.346	<0.338	<0.410	<0.421	<0.450	<0.375	<0.401 [<0.389]	<0.334	<0.341	<0.340	<0.341	<0.348	<0.469
Thallium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Chloronaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Methylnaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Naphthylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,3,4,6-Tetrachlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4,5-Trichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4,6-Trichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dimethylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dinitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dinitrotoluene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,6-Dichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,6-Dinitrotoluene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Chloronaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Chlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Methylnaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Naphthylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Nitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Picoline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3,3'-Dichlorobenzidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Methylcholanthrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Methylphenol/4-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4,6-Dinitro-2-methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Aminobiphenyl	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Bromophenyl-phenylether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chloro-3-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chloroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chlorophenyl-phenylether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Nitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
7,12-Dimethylbenz(a)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
a,a'-Dimethylphenethylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Acenaphthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Acenaphthylene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Acetophenone	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Aniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(a)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(a)pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(b)fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(g,h,i)perylene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(k)fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzoic Acid	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzyl Alcohol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Bis (2-Chloroisopropyl) Ether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Chloroethoxy)methane	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Chloroethyl)ether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Ethylhexyl)phthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Butylbenzylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Chrysene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenz(a,j)acridine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenzo(a,h)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenzofuran	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diethylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dimethylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Di-n-Butylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Di-n-Octylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diphenylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diphenylhydrazine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Ethyl Methanesulfonate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Fluorene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachlorocyclopentadiene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachloroethane	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Indeno(1,2,3-cd)pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Isophorone	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Methyl Methanesulfonate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Nitrobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitrosodimethylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitroso-di-n-butylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitroso-di-n-propylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitrosopiperidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
p-Dimethylaminoazobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachloronitrobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenacetin	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenanthrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pronamide	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pyridine	mg/kg	<0.34	<0.35 Z	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,1-Trichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,2,2-Tetrachloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,2-Trichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1-Dichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	0.0013 J	<0.0027	<0.0027	<0.0027	<0.0028	0.006
1,1-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
1,1-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,3-Trichlorobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,3-Trichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,4-Trimethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dibromo-3-chloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dibromoethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,3,5-Trimethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,3-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2,2-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Butanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	0.0095
2-Chloroethylvinylether	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Chlorotoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Hexanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
4-Chlorotoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
4-Methyl-2-pentanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Acetone	mg/kg	<0.0067	<0.0069	<0.0068	<0.0082	<0.0050	<0.0090	<0.0050	<0.0080 [<0.0078]	<0.0067	<0.0068	<0.0068	<0.0068	0.014	0.073
Acrylonitrile	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Benzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromochloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromodichloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromoform	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Carbon Disulfide	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	0.0033 J
Carbon Tetrachloride	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chlorobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloroform	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
cis-1,2-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
cis-1,3-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dibromochloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dibromomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dichlorodifluoromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Ethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Iodomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Isopropylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
m,p-Xylene	mg/kg	<0.0054	<0.0055	<0.0054	<0.0066	<0.0040	<0.0072	<0.0040	<0.0064 [<0.0062]	<0.0053	<0.0055	<0.0055	<0.0055	<0.0056	<0.0075
Methyl tert-butyl ether	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Methylene Chloride	mg/kg	<0.0067	<0.0069	<0.0068	0.014 B	<0.0050	<0.0090	<0.0050	<0.0080 [0.0064 JB]	<0.0067	<0.0068	<0.0068	<0.0068	<0.0070	<0.0094
n-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
n-Propylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
o-Xylene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
p-Isopropyltoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
sec-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Styrene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
tert-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Tetrachloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Toluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,2-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,3-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,4-Dichloro-2-butene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Trichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Trichlorofluoromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Vinyl Chloride	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
Metals					
Antimony	mg/kg	NA	NA	NA	NA
Arsenic	mg/kg	<2.00	1.41 J	<2.00	<2.00
Barium	mg/kg	65.1	110	66.3	83
Beryllium	mg/kg	NA	NA	NA	NA
Cadmium	mg/kg	<1.36	<0.674	<0.829	<0.454
Chromium	mg/kg	27.1	23.9	6.84	17.6
Cobalt	mg/kg	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<3.33	<4.19	<4.58	<1.56
Lead	mg/kg	<6.82	<3.37	<4.14	<2.27
Mercury	mg/kg	0.0236 J	0.0314 J	0.0139 J	0.0156 J
Nickel	mg/kg	NA	NA	NA	NA
Selenium	mg/kg	<13.6	<6.74	<8.29	<4.54
Silver	mg/kg	<1.70	<0.843	<1.04	<0.567
Thallium	mg/kg	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA
SVOCs					
1,2,4,5-Tetrachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Chloronaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Methylnaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Naphthylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
2,3,4,6-Tetrachlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4,5-Trichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4,6-Trichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dimethylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dinitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dinitrotoluene	mg/kg	<1.7	<0.84	<1.0	<0.57
2,6-Dichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,6-Dinitrotoluene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Chloronaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Chlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Methylnaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Naphthylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Nitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Picoline	mg/kg	<1.7	<0.84	<1.0	<0.57
3,3'-Dichlorobenzidine	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Methylcholanthrene	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Methylphenol/4-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4,6-Dinitro-2-methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Aminobiphenyl	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Bromophenyl-phenylether	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chloro-3-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chloroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chlorophenyl-phenylether	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Nitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
7,12-Dimethylbenz(a)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
a,a'-Dimethylphenethylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
Acenaphthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Acenaphthylene	mg/kg	<1.7	<0.84	<1.0	<0.57

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
Acetophenone	mg/kg	<1.7	<0.84	<1.0	<0.57
Aniline	mg/kg	<1.7	<0.84	<1.0	<0.57
Anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzidine	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(a)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(a)pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(b)fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(g,h,i)perylene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(k)fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzoic Acid	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzyl Alcohol	mg/kg	<1.7	<0.84	<1.0	<0.57
Bis (2-Chloroisopropyl) Ether	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Chloroethoxy)methane	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Chloroethyl)ether	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Ethylhexyl)phthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Butylbenzylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Chrysene	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenz(a,j)acridine	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenzo(a,h)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenzofuran	mg/kg	<1.7	<0.84	<1.0	<0.57
Diethylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Dimethylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Di-n-Butylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Di-n-Octylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Diphenylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
Diphenylhydrazine	mg/kg	<1.7	<0.84	<1.0	<0.57
Ethyl Methanesulfonate	mg/kg	<1.7	<0.84	<1.0	<0.57
Fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Fluorene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachlorocyclopentadiene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachloroethane	mg/kg	<1.7	<0.84	<1.0	<0.57
Indeno(1,2,3-cd)pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Isophorone	mg/kg	<1.7	<0.84	<1.0	<0.57
Methyl Methanesulfonate	mg/kg	<1.7	<0.84	<1.0	<0.57
Nitrobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitrosodimethylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitroso-di-n-butylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitroso-di-n-propylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitrosopiperidine	mg/kg	<1.7	<0.84	<1.0	<0.57
p-Dimethylaminoazobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachloronitrobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenacetin	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenanthrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenol	mg/kg	<1.7	<0.84	<1.0	<0.57
Pronamide	mg/kg	<1.7	<0.84	<1.0	<0.57
Pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pyridine	mg/kg	<1.7	<0.84	<1.0	<0.57
VOCs					
1,1,1,2-Tetrachloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,1-Trichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,2,2-Tetrachloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,2-Trichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1-Dichloroethane	mg/kg	<0.014	<0.0067	0.0056 J	<0.0045
1,1-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045

Table E.4.Attachment 1
Soil and Sludge Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
1,1-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,3-Trichlorobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,3-Trichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,4-Trimethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dibromo-3-chloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dibromoethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,3,5-Trimethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,3-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2,2-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Butanone	mg/kg	0.046	<0.0067	0.022	<0.0045
2-Chloroethylvinylether	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Chlorotoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Hexanone	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
4-Chlorotoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
4-Methyl-2-pentanone	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Acetone	mg/kg	0.4	<0.017	0.15	<0.011
Acrylonitrile	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Benzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromochloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromodichloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromoform	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Carbon Disulfide	mg/kg	0.037	<0.0067	0.0068 J	<0.0045
Carbon Tetrachloride	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chlorobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloroform	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
cis-1,2-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
cis-1,3-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dibromochloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dibromomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dichlorodifluoromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Ethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Iodomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Isopropylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
m,p-Xylene	mg/kg	<0.027	<0.014	<0.017	<0.0091
Methyl tert-butyl ether	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Methylene Chloride	mg/kg	<0.034	<0.017	<0.021	<0.011
n-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
n-Propylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
o-Xylene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
p-Isopropyltoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
sec-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Styrene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
tert-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Tetrachloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Toluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,2-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,3-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,4-Dichloro-2-butene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Trichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Trichlorofluoromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Vinyl Chloride	mg/kg	<0.014	<0.0067	<0.0083	<0.0045

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG1-CS-001	LAG1-CS-002	LAG1-CS-003	LAG1-CS-004	LAG1-CS-005	LAG2-CS-001	LAG2-CS-002	LAG2-CS-003	LAG2-CS-004	LAG2-CS-005	LAG3-CS-001	LAG3-CS-002	LAG3-CS-003	LAG3-CS-004
Sample Depth(ft):		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08
Field Notes:	Units	LAG1-CS-001	LAG1-CS-002	LAG1-CS-003	LAG1-CS-004	LAG1-CS-005	LAG2-CS-001	LAG2-CS-002	LAG2-CS-003	LAG2-CS-004	LAG2-CS-005	LAG3-CS-001	LAG3-CS-002	LAG3-CS-003	LAG3-CS-004
Metals															
Antimony	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	2.62	NA	<2.00
Arsenic	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Barium	mg/kg	NA	40.9	NA	21.4 [33.9]	NA	19.1	NA	18.6	NA	21.9	NA	15.2	NA	13.3
Beryllium	mg/kg	NA	<0.500	NA	<0.500 [<0.500]	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500
Cadmium	mg/kg	NA	1.28	NA	<0.200 [<0.200]	NA	<0.200	NA	0.245	NA	<0.200	NA	<0.200	NA	<0.200
Chromium	mg/kg	2.83	12.1	2.02	1.44 [2.59]	2.81	1.82	1.73	1.6	1.85	1.83	0.524	1.43	1.22	1.27
Cobalt	mg/kg	NA	1.23	NA	0.541 [0.949]	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500
Copper	mg/kg	NA	330	NA	2.71 [4.41]	NA	34.4	NA	26	NA	27.2	NA	1.41	NA	2.33
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Lead	mg/kg	NA	29.9	NA	<1.00 [<1.00]	NA	2.32	NA	3.15	NA	2.67	NA	<1.00	NA	<1.00
Mercury	mg/kg	NA	0.165	NA	<0.0400 [<0.0400]	NA	<0.0400	NA	<0.0400	NA	<0.0400	NA	<0.0400	NA	<0.0400
Nickel	mg/kg	NA	4.74	NA	0.774 [1.44]	NA	0.856	NA	0.723	NA	1.01	NA	0.67	NA	<0.500
Selenium	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Silver	mg/kg	NA	<0.250	NA	<0.250 [<0.250]	NA	<0.250	NA	<0.250	NA	<0.250	NA	<0.250	NA	<0.250
Thallium	mg/kg	NA	<10.0	NA	<10.0 [<10.0]	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0
Tin	mg/kg	NA	5.74	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Vanadium	mg/kg	NA	10.5	NA	3.78 [6.10]	NA	2.76	NA	2.53	NA	3.04	NA	2.07	NA	1.57
Zinc	mg/kg	NA	222	NA	6.37 [10.1]	NA	41.7	NA	29.9	NA	33.9	NA	5.58	NA	6.49
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a'-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG1-CS-001 0 03/11/08 LAG1-CS-001	LAG1-CS-002 0 03/11/08 LAG1-CS-002	LAG1-CS-003 0 03/11/08 LAG1-CS-003	LAG1-CS-004 0 03/11/08 LAG1-CS-004	LAG1-CS-005 0 03/11/08 LAG1-CS-005	LAG2-CS-001 0 03/11/08 LAG2-CS-001	LAG2-CS-002 0 03/11/08 LAG2-CS-002	LAG2-CS-003 0 03/11/08 LAG2-CS-003	LAG2-CS-004 0 03/11/08 LAG2-CS-004	LAG2-CS-005 0 03/11/08 LAG2-CS-005	LAG3-CS-001 0 03/11/08 LAG3-CS-001	LAG3-CS-002 0 03/11/08 LAG3-CS-002	LAG3-CS-003 0 03/11/08 LAG3-CS-003	LAG3-CS-004 0 03/11/08 LAG3-CS-004
Acetophenone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis (2-Chloroisopropyl) Ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,j)acridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG1-CS-001 0 03/11/08 LAG1-CS-001	LAG1-CS-002 0 03/11/08 LAG1-CS-002	LAG1-CS-003 0 03/11/08 LAG1-CS-003	LAG1-CS-004 0 03/11/08 LAG1-CS-004	LAG1-CS-005 0 03/11/08 LAG1-CS-005	LAG2-CS-001 0 03/11/08 LAG2-CS-001	LAG2-CS-002 0 03/11/08 LAG2-CS-002	LAG2-CS-003 0 03/11/08 LAG2-CS-003	LAG2-CS-004 0 03/11/08 LAG2-CS-004	LAG2-CS-005 0 03/11/08 LAG2-CS-005	LAG3-CS-001 0 03/11/08 LAG3-CS-001	LAG3-CS-002 0 03/11/08 LAG3-CS-002	LAG3-CS-003 0 03/11/08 LAG3-CS-003	LAG3-CS-004 0 03/11/08 LAG3-CS-004
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroethylvinylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Metals															
Antimony	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	<2.79	<2.78	<2.77	<2.76	<2.79	<3.17	<2.96	<2.82
Barium	mg/kg	NA	11.1	NA	10.3	NA	5.54	30	30.1	49.2	39.8	31.2	72.2	79.6	46.8
Beryllium	mg/kg	NA	<0.500	NA	<0.500	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	NA	<0.200	NA	<0.200	NA	<0.200	<0.279	<0.278	<0.277	<0.276	<0.279	0.0809 J	0.140 J	<0.282
Chromium	mg/kg	1.17	1.38	4.18 [2.22]	4.93	1.03	1.9	2.61	2.83	3.75	3.68	3.23	6.12	6.63	3.4
Cobalt	mg/kg	NA	<0.500	NA	<0.500	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	2.15	NA	2.63	NA	1.86	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<2.00	<2.05	<2.03	<2.16	<2.01	<2.37	<2.08	<1.85
Lead	mg/kg	NA	<1.00	NA	<1.00	NA	<1.00	<1.39	<1.39	<1.38	<1.38	<1.39	<1.59	<1.48	<1.41
Mercury	mg/kg	NA	<0.0400	NA	<0.0400	NA	<0.0400	<0.0348	0.00414 J	<0.0346	<0.0346	0.00412 J	0.0888	0.092	0.00592 J
Nickel	mg/kg	NA	<0.500	NA	0.779	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	<2.79	<2.78	<2.77	<2.76	<2.79	<3.17	<2.96	<2.82
Silver	mg/kg	NA	<0.250	NA	<0.250	NA	<0.250	<0.348	<0.347	<0.346	<0.346	<0.348	<0.396	<0.370	<0.352
Thallium	mg/kg	NA	<10.0	NA	<10.0	NA	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	1.22	NA	1.4	NA	0.875	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	7.76	NA	7.12	NA	4.98	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,3,4,6-Tetrachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4,5-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dimethylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,6-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,6-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Chlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Picoline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3,3'-Dichlorobenzidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Methylcholanthrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Methylphenol/4-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4,6-Dinitro-2-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Bromophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chloro-3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chloroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chlorophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
7,12-Dimethylbenz(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
a,a'-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Acenaphthylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Acetophenone	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzoic Acid	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzyl Alcohol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Bis (2-Chloroisopropyl) Ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Chloroethoxy)methane	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Chloroethyl)ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Ethylhexyl)phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Butylbenzylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Chrysene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenz(a,j)acridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenzo(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenzofuran	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dimethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Di-n-Butylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Di-n-Octylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Ethyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Fluorene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachlorocyclopentadiene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Isophorone	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Methyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Nitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitrosodimethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitroso-di-n-butylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitroso-di-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitrosopiperidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
p-Dimethylaminoazobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachloronitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenacetin	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenanthrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pronamide	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pyridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,2,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,2-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,3-Trichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,4-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dibromo-3-chloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,3-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Butanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Chloroethylvinylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Hexanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
4-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
4-Methyl-2-pentanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Acetone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0070	0.0052 J	0.036	<0.0069	<0.0070	<0.0079	<0.0074	<0.0071
Acrylonitrile	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Benzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromodichloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromoform	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Carbon Disulfide	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	0.0025 J	<0.0028	0.0018 J	<0.0032	<0.0030	<0.0028
Carbon Tetrachloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloroform	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dibromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dibromomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dichlorodifluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Ethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0056	<0.0056	<0.0055	<0.0055	<0.0056	<0.0063	<0.0059	<0.0056
Methyl tert-butyl ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Methylene Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0070	<0.0069	<0.0069	<0.0069	<0.0070	<0.0079	<0.0074	<0.0071
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
p-Isopropyltoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Styrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Tetrachloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Toluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,4-Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Trichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Trichlorofluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Metals															
Antimony	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	<2.90	<2.48	<2.65	<2.64	<2.75	<2.95	<2.26 [<2.75]	<2.95	<2.72	1.07 J	<2.75	<2.66	<2.68	1.77 J
Barium	mg/kg	63.1	105	41	42.4	43.1	39.1	29.6 [32.6]	59.5	66	40.9	25.8	50.8	50.8	36.3
Beryllium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	<0.290	2.08	<0.265	<0.264	<0.275	<0.295	<0.226 [<0.275]	0.218 J	<0.272	<0.278	<0.275	<0.266	<0.268	<0.273
Chromium	mg/kg	23.4	24.6	4.66	11.8	2.42	4.59	2.83 [2.95]	4.04	4.62	3.7	1.23	3.1	3.55	2.89
Cobalt	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<2.03	<1.76	<1.96	<1.91	<2.00	<1.98	<2.00 [<1.99]	<2.17	<2.08	<1.96	<1.99	<2.11	<1.94	<1.97
Lead	mg/kg	<1.45	62.5	<1.33	<1.32	<1.38	<1.48	<1.13 [<1.38]	1.18 J	<1.36	<1.39	<1.38	<1.33	<1.34	<1.36
Mercury	mg/kg	0.209	1.44	<0.0332	<0.0330	<0.0344	<0.0369	<0.0283 [<0.0344]	0.133	0.0684	0.0846	0.0989	0.0527	<0.0335	<0.0341 Z
Nickel	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<2.90	<2.48	<2.65	<2.64	<2.75	<2.95	<2.26 [<2.75]	1.49 J	<2.72	<2.78	<2.75	<2.66	<2.68	<2.73
Silver	mg/kg	<0.363	<0.310	<0.332	<0.330	<0.344	<0.369	<0.283 [<0.344]	<0.369	<0.340	<0.348	<0.344	<0.332	<0.335	<0.341
Thallium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
1-Chloronaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
1-Methylnaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.067 J	<17	<0.35	<17	<17	<0.34	<0.34
1-Naphthylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,3,4,6-Tetrachlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4,5-Trichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4,6-Trichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dimethylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dinitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dinitrotoluene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,6-Dichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,6-Dinitrotoluene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Chloronaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Chlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Methylnaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Naphthylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Nitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Picoline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3,3'-Dichlorobenzidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Methylcholanthrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Methylphenol/4-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4,6-Dinitro-2-methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Aminobiphenyl	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Bromophenyl-phenylether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chloro-3-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chloroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chlorophenyl-phenylether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Nitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
7,12-Dimethylbenz(a)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
a,a'-Dimethylphenethylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Acenaphthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Acenaphthylene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Acetophenone	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Aniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(a)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(a)pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(b)fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(g,h,i)perylene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(k)fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzoic Acid	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzyl Alcohol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Bis (2-Chloroisopropyl) Ether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Chloroethoxy)methane	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Chloroethyl)ether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Ethylhexyl)phthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Butylbenzylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Chrysene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenz(a,j)acridine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenzo(a,h)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenzofuran	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diethylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dimethylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Di-n-Butylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	0.042 J	<17	<17	<0.34	<0.34
Di-n-Octylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diphenylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diphenylhydrazine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Ethyl Methanesulfonate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Fluorene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachlorocyclopentadiene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachloroethane	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Indeno(1,2,3-cd)pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Isophorone	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.53	<17	0.16 J	<17	<17	<0.34	<0.34
Methyl Methanesulfonate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Nitrobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitrosodimethylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitroso-di-n-butylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitroso-di-n-propylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitrosopiperidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
p-Dimethylaminoazobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachloronitrobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Phenacetin	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Phenanthrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.53	<17	<0.35	<17	<17	<0.34	<0.34
Phenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pronamide	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pyridine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34 Z
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,1-Trichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,2,2-Tetrachloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,2-Trichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1-Dichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
1,1-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,3-Trichlorobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,3-Trichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,4-Trimethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dibromo-3-chloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dibromoethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,3,5-Trimethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,3-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2,2-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Butanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Chloroethylvinylether	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Chlorotoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Hexanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
4-Chlorotoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
4-Methyl-2-pentanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Acetone	mg/kg	<0.0073	<0.0062	<0.0066	<0.0066	<0.0069	<0.0067	<0.0057 [<0.0069]	<0.0074	<0.0068	<0.0070	<0.0069	<0.0074	<0.0067	<0.0068
Acrylonitrile	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Benzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromochloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromodichloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromoform	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Carbon Disulfide	mg/kg	<0.0029	<0.0025	0.0047	0.0043	0.0048	0.0028	0.012 [0.015]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Carbon Tetrachloride	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chlorobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloroform	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
cis-1,2-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
cis-1,3-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dibromochloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dibromomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dichlorodifluoromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Ethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Iodomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Isopropylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
m,p-Xylene	mg/kg	<0.0058	<0.0050	<0.0053	<0.0053	<0.0055	<0.0053	<0.0045 [<0.0055]	<0.0059	<0.0055	<0.0056	<0.0055	<0.0059	<0.0054	<0.0055
Methyl tert-butyl ether	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Methylene Chloride	mg/kg	<0.0073	<0.0062	<0.0066	<0.0066	<0.0069	<0.0067	<0.0057 [<0.0069]	<0.0074	<0.0068	0.0064 JB	<0.0069	<0.0074	0.0049 JB	<0.0068
n-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
n-Propylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
o-Xylene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
p-Isopropyltoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
sec-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Styrene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
tert-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Tetrachloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Toluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,2-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,3-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,4-Dichloro-2-butene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Trichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Trichlorofluoromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Vinyl Chloride	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Metals															
Antimony	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	<2.69	<2.77	<2.70	<3.28	<3.37	<3.60	<3.00	<3.21 [0.903 J]	<2.67	<2.72	<2.72	<2.73	<2.78	<3.76
Barium	mg/kg	56.3	20.1	73.5	28.2	31.3	50	53.7	54.4 [61.5]	14	35	44.3	56	51	81.5
Beryllium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	<0.269	<0.277	<0.270	<0.328	<0.337	<0.360	<0.300	<0.321 [<0.312]	<0.267	<0.272	<0.272	<0.273	<0.278	<0.376
Chromium	mg/kg	4.13	1.61	4.35	1.79	1.9	4.37	4.24	4.74 [6.00]	2.16	2.36	3.06	4.23	2.2	11
Cobalt	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.94	<2.06	<1.96	<1.70	<2.49	<1.58	<1.86	<1.56 [<1.99]	<1.86	<2.03	<1.98	<1.82	<2.01	<19.3
Lead	mg/kg	<1.34	<1.38	1.36	<1.64	<1.68	<1.80	<1.50	<1.60 [<1.56]	<1.33	<1.36	<1.36	<1.36	<1.39	<1.88
Mercury	mg/kg	<0.0336	<0.0346 Z	<0.0338	0.00831 J	0.00774 J	<0.0450	0.0339 J	0.00889 J [0.0108 J]	<0.0334	<0.0341	<0.0340	<0.0341	<0.0348	0.00706 J
Nickel	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<2.69	<2.77	<2.70	2.33 J	<3.37	<3.60	<3.00	<3.21 [<3.12]	<2.67	<2.72	<2.72	<2.73	<2.78	<3.76
Silver	mg/kg	<0.336	<0.346	<0.338	<0.410	<0.421	<0.450	<0.375	<0.401 [<0.389]	<0.334	<0.341	<0.340	<0.341	<0.348	<0.469
Thallium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Chloronaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Methylnaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Naphthylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,3,4,6-Tetrachlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4,5-Trichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4,6-Trichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dimethylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dinitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dinitrotoluene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,6-Dichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,6-Dinitrotoluene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Chloronaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Chlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Methylnaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Naphthylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Nitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Picoline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3,3'-Dichlorobenzidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Methylcholanthrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Methylphenol/4-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4,6-Dinitro-2-methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Aminobiphenyl	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Bromophenyl-phenylether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chloro-3-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chloroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chlorophenyl-phenylether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Nitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
7,12-Dimethylbenz(a)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
a,a'-Dimethylphenethylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Acenaphthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Acenaphthylene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Acetophenone	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Aniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(a)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(a)pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(b)fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(g,h,i)perylene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(k)fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzoic Acid	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzyl Alcohol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Bis (2-Chloroisopropyl) Ether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Chloroethoxy)methane	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Chloroethyl)ether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Ethylhexyl)phthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Butylbenzylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Chrysene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenz(a,j)acridine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenzo(a,h)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenzofuran	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diethylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dimethylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Di-n-Butylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Di-n-Octylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diphenylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diphenylhydrazine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Ethyl Methanesulfonate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Fluorene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachlorocyclopentadiene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachloroethane	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Indeno(1,2,3-cd)pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Isophorone	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Methyl Methanesulfonate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Nitrobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitrosodimethylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitroso-di-n-butylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitroso-di-n-propylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitrosopiperidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
p-Dimethylaminoazobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachloronitrobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenacetin	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenanthrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pronamide	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pyridine	mg/kg	<0.34	<0.35 Z	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,1-Trichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,2,2-Tetrachloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,2-Trichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1-Dichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	0.0013 J	<0.0027	<0.0027	<0.0027	<0.0028	0.006
1,1-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
1,1-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,3-Trichlorobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,3-Trichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,4-Trimethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dibromo-3-chloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dibromoethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,3,5-Trimethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,3-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2,2-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Butanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	0.0095
2-Chloroethylvinylether	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Chlorotoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Hexanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
4-Chlorotoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
4-Methyl-2-pentanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Acetone	mg/kg	<0.0067	<0.0069	<0.0068	<0.0082	<0.0050	<0.0090	<0.0050	<0.0080 [<0.0078]	<0.0067	<0.0068	<0.0068	<0.0068	0.014	0.073
Acrylonitrile	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Benzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromochloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromodichloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromoform	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Carbon Disulfide	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	0.0033 J
Carbon Tetrachloride	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chlorobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloroform	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
cis-1,2-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
cis-1,3-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dibromochloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dibromomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dichlorodifluoromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Ethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Iodomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Isopropylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
m,p-Xylene	mg/kg	<0.0054	<0.0055	<0.0054	<0.0066	<0.0040	<0.0072	<0.0040	<0.0064 [<0.0062]	<0.0053	<0.0055	<0.0055	<0.0055	<0.0056	<0.0075
Methyl tert-butyl ether	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Methylene Chloride	mg/kg	<0.0067	<0.0069	<0.0068	0.014 B	<0.0050	<0.0090	<0.0050	<0.0080 [0.0064 JB]	<0.0067	<0.0068	<0.0068	<0.0068	<0.0070	<0.0094
n-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
n-Propylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
o-Xylene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
p-Isopropyltoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
sec-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Styrene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
tert-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Tetrachloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Toluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,2-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,3-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,4-Dichloro-2-butene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Trichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Trichlorofluoromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Vinyl Chloride	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
Metals					
Antimony	mg/kg	NA	NA	NA	NA
Arsenic	mg/kg	<2.00	1.41 J	<2.00	<2.00
Barium	mg/kg	65.1	110	66.3	83
Beryllium	mg/kg	NA	NA	NA	NA
Cadmium	mg/kg	<1.36	<0.674	<0.829	<0.454
Chromium	mg/kg	27.1	23.9	6.84	17.6
Cobalt	mg/kg	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<3.33	<4.19	<4.58	<1.56
Lead	mg/kg	<6.82	<3.37	<4.14	<2.27
Mercury	mg/kg	0.0236 J	0.0314 J	0.0139 J	0.0156 J
Nickel	mg/kg	NA	NA	NA	NA
Selenium	mg/kg	<13.6	<6.74	<8.29	<4.54
Silver	mg/kg	<1.70	<0.843	<1.04	<0.567
Thallium	mg/kg	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA
SVOCs					
1,2,4,5-Tetrachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Chloronaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Methylnaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Naphthylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
2,3,4,6-Tetrachlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4,5-Trichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4,6-Trichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dimethylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dinitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dinitrotoluene	mg/kg	<1.7	<0.84	<1.0	<0.57
2,6-Dichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,6-Dinitrotoluene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Chloronaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Chlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Methylnaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Naphthylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Nitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Picoline	mg/kg	<1.7	<0.84	<1.0	<0.57
3,3'-Dichlorobenzidine	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Methylcholanthrene	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Methylphenol/4-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4,6-Dinitro-2-methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Aminobiphenyl	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Bromophenyl-phenylether	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chloro-3-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chloroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chlorophenyl-phenylether	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Nitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
7,12-Dimethylbenz(a)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
a,a'-Dimethylphenethylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
Acenaphthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Acenaphthylene	mg/kg	<1.7	<0.84	<1.0	<0.57

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
Acetophenone	mg/kg	<1.7	<0.84	<1.0	<0.57
Aniline	mg/kg	<1.7	<0.84	<1.0	<0.57
Anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzidine	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(a)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(a)pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(b)fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(g,h,i)perylene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(k)fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzoic Acid	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzyl Alcohol	mg/kg	<1.7	<0.84	<1.0	<0.57
Bis (2-Chloroisopropyl) Ether	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Chloroethoxy)methane	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Chloroethyl)ether	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Ethylhexyl)phthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Butylbenzylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Chrysene	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenz(a,j)acridine	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenzo(a,h)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenzofuran	mg/kg	<1.7	<0.84	<1.0	<0.57
Diethylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Dimethylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Di-n-Butylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Di-n-Octylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Diphenylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
Diphenylhydrazine	mg/kg	<1.7	<0.84	<1.0	<0.57
Ethyl Methanesulfonate	mg/kg	<1.7	<0.84	<1.0	<0.57
Fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Fluorene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachlorocyclopentadiene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachloroethane	mg/kg	<1.7	<0.84	<1.0	<0.57
Indeno(1,2,3-cd)pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Isophorone	mg/kg	<1.7	<0.84	<1.0	<0.57
Methyl Methanesulfonate	mg/kg	<1.7	<0.84	<1.0	<0.57
Nitrobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitrosodimethylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitroso-di-n-butylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitroso-di-n-propylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitrosopiperidine	mg/kg	<1.7	<0.84	<1.0	<0.57
p-Dimethylaminoazobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachloronitrobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenacetin	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenanthrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenol	mg/kg	<1.7	<0.84	<1.0	<0.57
Pronamide	mg/kg	<1.7	<0.84	<1.0	<0.57
Pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pyridine	mg/kg	<1.7	<0.84	<1.0	<0.57
VOCs					
1,1,1,2-Tetrachloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,1-Trichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,2,2-Tetrachloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,2-Trichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1-Dichloroethane	mg/kg	<0.014	<0.0067	0.0056 J	<0.0045
1,1-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045

Table E.4.Attachment 2
Soil and Sludge Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
1,1-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,3-Trichlorobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,3-Trichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,4-Trimethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dibromo-3-chloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dibromoethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,3,5-Trimethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,3-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2,2-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Butanone	mg/kg	0.046	<0.0067	0.022	<0.0045
2-Chloroethylvinylether	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Chlorotoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Hexanone	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
4-Chlorotoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
4-Methyl-2-pentanone	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Acetone	mg/kg	0.4	<0.017	0.15	<0.011
Acrylonitrile	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Benzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromochloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromodichloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromoform	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Carbon Disulfide	mg/kg	0.037	<0.0067	0.0068 J	<0.0045
Carbon Tetrachloride	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chlorobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloroform	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
cis-1,2-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
cis-1,3-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dibromochloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dibromomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dichlorodifluoromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Ethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Iodomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Isopropylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
m,p-Xylene	mg/kg	<0.027	<0.014	<0.017	<0.0091
Methyl tert-butyl ether	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Methylene Chloride	mg/kg	<0.034	<0.017	<0.021	<0.011
n-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
n-Propylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
o-Xylene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
p-Isopropyltoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
sec-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Styrene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
tert-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Tetrachloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Toluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,2-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,3-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,4-Dichloro-2-butene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Trichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Trichlorofluoromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Vinyl Chloride	mg/kg	<0.014	<0.0067	<0.0083	<0.0045

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG1-CS-001	LAG1-CS-002	LAG1-CS-003	LAG1-CS-004	LAG1-CS-005	LAG2-CS-001	LAG2-CS-002	LAG2-CS-003	LAG2-CS-004	LAG2-CS-005	LAG3-CS-001	LAG3-CS-002	LAG3-CS-003	LAG3-CS-004
Sample Depth(ft):		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08
Field Notes:	Units	LAG1-CS-001	LAG1-CS-002	LAG1-CS-003	LAG1-CS-004	LAG1-CS-005	LAG2-CS-001	LAG2-CS-002	LAG2-CS-003	LAG2-CS-004	LAG2-CS-005	LAG3-CS-001	LAG3-CS-002	LAG3-CS-003	LAG3-CS-004
Metals															
Antimony	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	2.62	NA	<2.00
Arsenic	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Barium	mg/kg	NA	40.9	NA	21.4 [33.9]	NA	19.1	NA	18.6	NA	21.9	NA	15.2	NA	13.3
Beryllium	mg/kg	NA	<0.500	NA	<0.500 [<0.500]	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500
Cadmium	mg/kg	NA	1.28	NA	<0.200 [<0.200]	NA	<0.200	NA	0.245	NA	<0.200	NA	<0.200	NA	<0.200
Chromium	mg/kg	2.83	12.1	2.02	1.44 [2.59]	2.81	1.82	1.73	1.6	1.85	1.83	0.524	1.43	1.22	1.27
Cobalt	mg/kg	NA	1.23	NA	0.541 [0.949]	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500	NA	<0.500
Copper	mg/kg	NA	330	NA	2.71 [4.41]	NA	34.4	NA	26	NA	27.2	NA	1.41	NA	2.33
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Lead	mg/kg	NA	29.9	NA	<1.00 [<1.00]	NA	2.32	NA	3.15	NA	2.67	NA	<1.00	NA	<1.00
Mercury	mg/kg	NA	0.165	NA	<0.0400 [<0.0400]	NA	<0.0400	NA	<0.0400	NA	<0.0400	NA	<0.0400	NA	<0.0400
Nickel	mg/kg	NA	4.74	NA	0.774 [1.44]	NA	0.856	NA	0.723	NA	1.01	NA	0.67	NA	<0.500
Selenium	mg/kg	NA	<2.00	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Silver	mg/kg	NA	<0.250	NA	<0.250 [<0.250]	NA	<0.250	NA	<0.250	NA	<0.250	NA	<0.250	NA	<0.250
Thallium	mg/kg	NA	<10.0	NA	<10.0 [<10.0]	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0	NA	<10.0
Tin	mg/kg	NA	5.74	NA	<2.00 [<2.00]	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00	NA	<2.00
Vanadium	mg/kg	NA	10.5	NA	3.78 [6.10]	NA	2.76	NA	2.53	NA	3.04	NA	2.07	NA	1.57
Zinc	mg/kg	NA	222	NA	6.37 [10.1]	NA	41.7	NA	29.9	NA	33.9	NA	5.58	NA	6.49
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Picoline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylcholanthrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol/4-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a'-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG1-CS-001 0 03/11/08 LAG1-CS-001	LAG1-CS-002 0 03/11/08 LAG1-CS-002	LAG1-CS-003 0 03/11/08 LAG1-CS-003	LAG1-CS-004 0 03/11/08 LAG1-CS-004	LAG1-CS-005 0 03/11/08 LAG1-CS-005	LAG2-CS-001 0 03/11/08 LAG2-CS-001	LAG2-CS-002 0 03/11/08 LAG2-CS-002	LAG2-CS-003 0 03/11/08 LAG2-CS-003	LAG2-CS-004 0 03/11/08 LAG2-CS-004	LAG2-CS-005 0 03/11/08 LAG2-CS-005	LAG3-CS-001 0 03/11/08 LAG3-CS-001	LAG3-CS-002 0 03/11/08 LAG3-CS-002	LAG3-CS-003 0 03/11/08 LAG3-CS-003	LAG3-CS-004 0 03/11/08 LAG3-CS-004
Acetophenone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis (2-Chloroisopropyl) Ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,j)acridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-butylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachloronitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenacetin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pronamide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG1-CS-001 0 03/11/08 LAG1-CS-001	LAG1-CS-002 0 03/11/08 LAG1-CS-002	LAG1-CS-003 0 03/11/08 LAG1-CS-003	LAG1-CS-004 0 03/11/08 LAG1-CS-004	LAG1-CS-005 0 03/11/08 LAG1-CS-005	LAG2-CS-001 0 03/11/08 LAG2-CS-001	LAG2-CS-002 0 03/11/08 LAG2-CS-002	LAG2-CS-003 0 03/11/08 LAG2-CS-003	LAG2-CS-004 0 03/11/08 LAG2-CS-004	LAG2-CS-005 0 03/11/08 LAG2-CS-005	LAG3-CS-001 0 03/11/08 LAG3-CS-001	LAG3-CS-002 0 03/11/08 LAG3-CS-002	LAG3-CS-003 0 03/11/08 LAG3-CS-003	LAG3-CS-004 0 03/11/08 LAG3-CS-004
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloroethylvinylether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Metals															
Antimony	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	<2.79	<2.78	<2.77	<2.76	<2.79	<3.17	<2.96	<2.82
Barium	mg/kg	NA	11.1	NA	10.3	NA	5.54	30	30.1	49.2	39.8	31.2	72.2	79.6	46.8
Beryllium	mg/kg	NA	<0.500	NA	<0.500	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	NA	<0.200	NA	<0.200	NA	<0.200	<0.279	<0.278	<0.277	<0.276	<0.279	0.0809 J	0.140 J	<0.282
Chromium	mg/kg	1.17	1.38	4.18 [2.22]	4.93	1.03	1.9	2.61	2.83	3.75	3.68	3.23	6.12	6.63	3.4
Cobalt	mg/kg	NA	<0.500	NA	<0.500	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	2.15	NA	2.63	NA	1.86	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<2.00	<2.05	<2.03	<2.16	<2.01	<2.37	<2.08	<1.85
Lead	mg/kg	NA	<1.00	NA	<1.00	NA	<1.00	<1.39	<1.39	<1.38	<1.38	<1.39	<1.59	<1.48	<1.41
Mercury	mg/kg	NA	<0.0400	NA	<0.0400	NA	<0.0400	<0.0348	0.00414 J	<0.0346	<0.0346	0.00412 J	0.0888	0.092	0.00592 J
Nickel	mg/kg	NA	<0.500	NA	0.779	NA	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	<2.79	<2.78	<2.77	<2.76	<2.79	<3.17	<2.96	<2.82
Silver	mg/kg	NA	<0.250	NA	<0.250	NA	<0.250	<0.348	<0.347	<0.346	<0.346	<0.348	<0.396	<0.370	<0.352
Thallium	mg/kg	NA	<10.0	NA	<10.0	NA	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	<2.00	NA	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	1.22	NA	1.4	NA	0.875	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	7.76	NA	7.12	NA	4.98	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
1-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,3,4,6-Tetrachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4,5-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dimethylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,4-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,6-Dichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2,6-Dinitrotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Chlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
2-Picoline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3,3'-Dichlorobenzidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Methylcholanthrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Methylphenol/4-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
3-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4,6-Dinitro-2-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Bromophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chloro-3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chloroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Chlorophenyl-phenylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Nitroaniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
4-Nitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
7,12-Dimethylbenz(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
a,a'-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Acenaphthylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAG3-CS-005 0 03/11/08 LAG3-CS-005	LAG4-CS-001 0 03/11/08 LAG4-CS-001	LAG4-CS-002 0 03/11/08 LAG4-CS-002	LAG4-CS-003 0 03/11/08 LAG4-CS-003	LAG4-CS-004 0 03/11/08 LAG4-CS-004	LAG4-CS-005 0 03/11/08 LAG4-CS-005	LAGN1-SB-01 0.3 - 0.9 12/09/09 LAGN1-SB-01	LAGN1-SB-02 0.3 - 0.9 12/09/09 LAGN1-SB-02	LAGN1-SB-03 0.3 - 0.9 12/09/09 LAGN1-SB-03	LAGN1-SB-04 0.3 - 0.9 12/09/09 LAGN1-SB-04	LAGN1-SB-05 0.3 - 0.9 12/09/09 LAGN1-SB-05	LAGN1-SL-01 0 12/09/09 LAGN1-SL-01	LAGN1-SL-02 0 12/09/09 LAGN1-SL-02	LAGN1-SL-03 0 12/09/09 LAGN1-SL-03
Acetophenone	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzoic Acid	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Benzyl Alcohol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Bis (2-Chloroisopropyl) Ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Chloroethoxy)methane	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Chloroethyl)ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
bis(2-Ethylhexyl)phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Butylbenzylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Chrysene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenz(a,j)acridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenzo(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dibenzofuran	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Dimethylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Di-n-Butylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Di-n-Octylphthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Ethyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Fluorene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachlorocyclopentadiene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Hexachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Isophorone	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Methyl Methanesulfonate	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Nitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitrosodimethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitroso-di-n-butylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitroso-di-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
N-Nitrosopiperidine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
p-Dimethylaminoazobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachloronitrobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pentachlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenacetin	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenanthrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pronamide	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
Pyridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.40	<0.37	<0.35
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,2,2-Tetrachloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1,2-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,1-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
Sample Depth(ft):		0	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0
Date Collected:		03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	03/11/08	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAG3-CS-005	LAG4-CS-001	LAG4-CS-002	LAG4-CS-003	LAG4-CS-004	LAG4-CS-005	LAGN1-SB-01	LAGN1-SB-02	LAGN1-SB-03	LAGN1-SB-04	LAGN1-SB-05	LAGN1-SL-01	LAGN1-SL-02	LAGN1-SL-03
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,3-Trichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2,4-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dibromo-3-chloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
1,3-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Butanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Chloroethylvinylether	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
2-Hexanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
4-Chlorotoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
4-Methyl-2-pentanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Acetone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0070	0.0052 J	0.036	<0.0069	<0.0070	<0.0079	<0.0074	<0.0071
Acrylonitrile	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Benzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromodichloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromoform	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Bromomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Carbon Disulfide	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	0.0025 J	<0.0028	0.0018 J	<0.0032	<0.0030	<0.0028
Carbon Tetrachloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloroform	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Chloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dibromochloromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dibromomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Dichlorodifluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Ethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0056	<0.0056	<0.0055	<0.0055	<0.0056	<0.0063	<0.0059	<0.0056
Methyl tert-butyl ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Methylene Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0070	<0.0069	<0.0069	<0.0069	<0.0070	<0.0079	<0.0074	<0.0071
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
p-Isopropyltoluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Styrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Tetrachloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Toluene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
trans-1,4-Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Trichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Trichlorofluoromethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0032	<0.0030	<0.0028

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Sample Depth(ft):		0	0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9
Date Collected:		12/09/09	12/09/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/07/09	12/10/09	12/10/09
Field Notes:	Units	LAGN1-SL-04	LAGN1-SL-05	LAGN2-SB-01	LAGN2-SB-02	LAGN2-SB-03	LAGN2-SB-04	LAGN2-SB-05	LAGN2-SL-01	LAGN2-SL-02	LAGN2-SL-03	LAGN2-SL-04	LAGN2-SL-05	LAGN3-SB-01	LAGN3-SB-02
Metals															
Antimony	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	<2.90	<2.48	<2.65	<2.64	<2.75	<2.95	<2.26 [<2.75]	<2.95	<2.72	1.07 J	<2.75	<2.66	<2.68	1.77 J
Barium	mg/kg	63.1	105	41	42.4	43.1	39.1	29.6 [32.6]	59.5	66	40.9	25.8	50.8	50.8	36.3
Beryllium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	<0.290	2.08	<0.265	<0.264	<0.275	<0.295	<0.226 [<0.275]	0.218 J	<0.272	<0.278	<0.275	<0.266	<0.268	<0.273
Chromium	mg/kg	23.4	24.6	4.66	11.8	2.42	4.59	2.83 [2.95]	4.04	4.62	3.7	1.23	3.1	3.55	2.89
Cobalt	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<2.03	<1.76	<1.96	<1.91	<2.00	<1.98	<2.00 [<1.99]	<2.17	<2.08	<1.96	<1.99	<2.11	<1.94	<1.97
Lead	mg/kg	<1.45	62.5	<1.33	<1.32	<1.38	<1.48	<1.13 [<1.38]	1.18 J	<1.36	<1.39	<1.38	<1.33	<1.34	<1.36
Mercury	mg/kg	0.209	1.44	<0.0332	<0.0330	<0.0344	<0.0369	<0.0283 [<0.0344]	0.133	0.0684	0.0846	0.0989	0.0527	<0.0335	<0.0341 Z
Nickel	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<2.90	<2.48	<2.65	<2.64	<2.75	<2.95	<2.26 [<2.75]	1.49 J	<2.72	<2.78	<2.75	<2.66	<2.68	<2.73
Silver	mg/kg	<0.363	<0.310	<0.332	<0.330	<0.344	<0.369	<0.283 [<0.344]	<0.369	<0.340	<0.348	<0.344	<0.332	<0.335	<0.341
Thallium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
1-Chloronaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
1-Methylnaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.067 J	<17	<0.35	<17	<17	<0.34	<0.34
1-Naphthylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,3,4,6-Tetrachlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4,5-Trichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4,6-Trichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dimethylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dinitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,4-Dinitrotoluene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,6-Dichlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2,6-Dinitrotoluene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Chloronaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Chlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Methylnaphthalene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Naphthylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Nitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
2-Picoline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3,3'-Dichlorobenzidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Methylcholanthrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Methylphenol/4-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
3-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4,6-Dinitro-2-methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Aminobiphenyl	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Bromophenyl-phenylether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chloro-3-Methylphenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chloroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Chlorophenyl-phenylether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Nitroaniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
4-Nitrophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
7,12-Dimethylbenz(a)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
a,a'-Dimethylphenethylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Acenaphthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Acenaphthylene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN1-SL-04 0 12/09/09 LAGN1-SL-04	LAGN1-SL-05 0 12/09/09 LAGN1-SL-05	LAGN2-SB-01 1.5 - 2 12/07/09 LAGN2-SB-01	LAGN2-SB-02 1.5 - 2 12/07/09 LAGN2-SB-02	LAGN2-SB-03 1.5 - 2 12/07/09 LAGN2-SB-03	LAGN2-SB-04 1.5 - 2 12/07/09 LAGN2-SB-04	LAGN2-SB-05 0.3 - 0.9 12/07/09 LAGN2-SB-05	LAGN2-SL-01 0 12/07/09 LAGN2-SL-01	LAGN2-SL-02 0 12/07/09 LAGN2-SL-02	LAGN2-SL-03 0 12/07/09 LAGN2-SL-03	LAGN2-SL-04 0 12/07/09 LAGN2-SL-04	LAGN2-SL-05 0 12/07/09 LAGN2-SL-05	LAGN3-SB-01 0.3 - 0.9 12/10/09 LAGN3-SB-01	LAGN3-SB-02 0.3 - 0.9 12/10/09 LAGN3-SB-02
Acetophenone	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Aniline	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(a)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(a)pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(b)fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(g,h,i)perylene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzo(k)fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzoic Acid	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Benzyl Alcohol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Bis (2-Chloroisopropyl) Ether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Chloroethoxy)methane	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Chloroethyl)ether	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
bis(2-Ethylhexyl)phthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Butylbenzylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Chrysene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenz(a,j)acridine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenzo(a,h)anthracene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dibenzofuran	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diethylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Dimethylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Di-n-Butylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	0.042 J	<17	<17	<0.34	<0.34
Di-n-Octylphthalate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diphenylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Diphenylhydrazine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Ethyl Methanesulfonate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Fluoranthene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Fluorene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachlorocyclopentadiene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Hexachloroethane	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Indeno(1,2,3-cd)pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Isophorone	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.53	<17	0.16 J	<17	<17	<0.34	<0.34
Methyl Methanesulfonate	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Nitrobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitrosodimethylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitroso-di-n-butylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitroso-di-n-propylamine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
N-Nitrosopiperidine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
p-Dimethylaminoazobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachlorobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachloronitrobenzene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pentachlorophenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Phenacetin	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Phenanthrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	0.53	<17	<0.35	<17	<17	<0.34	<0.34
Phenol	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pronamide	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pyrene	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34
Pyridine	mg/kg	<0.36	<0.31	<0.33	<0.33	<0.34	<0.37	<0.28 [<0.34]	<0.37	<17	<0.35	<17	<17	<0.34	<0.34 Z
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,1-Trichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,2,2-Tetrachloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1,2-Trichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1-Dichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,1-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN1-SL-04 0 12/09/09 LAGN1-SL-04	LAGN1-SL-05 0 12/09/09 LAGN1-SL-05	LAGN2-SB-01 1.5 - 2 12/07/09 LAGN2-SB-01	LAGN2-SB-02 1.5 - 2 12/07/09 LAGN2-SB-02	LAGN2-SB-03 1.5 - 2 12/07/09 LAGN2-SB-03	LAGN2-SB-04 1.5 - 2 12/07/09 LAGN2-SB-04	LAGN2-SB-05 0.3 - 0.9 12/07/09 LAGN2-SB-05	LAGN2-SL-01 0 12/07/09 LAGN2-SL-01	LAGN2-SL-02 0 12/07/09 LAGN2-SL-02	LAGN2-SL-03 0 12/07/09 LAGN2-SL-03	LAGN2-SL-04 0 12/07/09 LAGN2-SL-04	LAGN2-SL-05 0 12/07/09 LAGN2-SL-05	LAGN3-SB-01 0.3 - 0.9 12/10/09 LAGN3-SB-01	LAGN3-SB-02 0.3 - 0.9 12/10/09 LAGN3-SB-02
1,1-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,3-Trichlorobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,3-Trichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2,4-Trimethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dibromo-3-chloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dibromoethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dichloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,2-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,3,5-Trimethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
1,3-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2,2-Dichloropropane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Butanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Chloroethylvinylether	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Chlorotoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
2-Hexanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
4-Chlorotoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
4-Methyl-2-pentanone	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Acetone	mg/kg	<0.0073	<0.0062	<0.0066	<0.0066	<0.0069	<0.0067	<0.0057 [<0.0069]	<0.0074	<0.0068	<0.0070	<0.0069	<0.0074	<0.0067	<0.0068
Acrylonitrile	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Benzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromochloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromodichloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromoform	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Bromomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Carbon Disulfide	mg/kg	<0.0029	<0.0025	0.0047	0.0043	0.0048	0.0028	0.012 [0.015]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Carbon Tetrachloride	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chlorobenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloroethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloroform	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Chloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
cis-1,2-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
cis-1,3-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dibromochloromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dibromomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Dichlorodifluoromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Ethylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Iodomethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Isopropylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
m,p-Xylene	mg/kg	<0.0058	<0.0050	<0.0053	<0.0053	<0.0055	<0.0053	<0.0045 [<0.0055]	<0.0059	<0.0055	<0.0056	<0.0055	<0.0059	<0.0054	<0.0055
Methyl tert-butyl ether	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Methylene Chloride	mg/kg	<0.0073	<0.0062	<0.0066	<0.0066	<0.0069	<0.0067	<0.0057 [<0.0069]	<0.0074	<0.0068	0.0064 JB	<0.0069	<0.0074	0.0049 JB	<0.0068
n-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
n-Propylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
o-Xylene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
p-Isopropyltoluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
sec-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Styrene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
tert-Butylbenzene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Tetrachloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Toluene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,2-Dichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,3-Dichloropropene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
trans-1,4-Dichloro-2-butene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Trichloroethene	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Trichlorofluoromethane	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027
Vinyl Chloride	mg/kg	<0.0029	<0.0025	<0.0027	<0.0026	<0.0028	<0.0027	<0.0023 [<0.0028]	<0.0030	<0.0027	<0.0028	<0.0028	<0.0030	<0.0027	<0.0027

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Sample Depth(ft):		0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0	0	0	0	0	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0.3 - 0.9	0
Date Collected:		12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/10/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09	12/09/09
Field Notes:	Units	LAGN3-SB-03	LAGN3-SB-04	LAGN3-SB-05	LAGN3-SL-01	LAGN3-SL-02	LAGN3-SL-03	LAGN3-SL-04	LAGN3-SL-05	LAGN4-SB-01	LAGN4-SB-02	LAGN4-SB-03	LAGN4-SB-04	LAGN4-SB-05	LAGN4-SL-01
Metals															
Antimony	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	<2.69	<2.77	<2.70	<3.28	<3.37	<3.60	<3.00	<3.21 [0.903 J]	<2.67	<2.72	<2.72	<2.73	<2.78	<3.76
Barium	mg/kg	56.3	20.1	73.5	28.2	31.3	50	53.7	54.4 [61.5]	14	35	44.3	56	51	81.5
Beryllium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	<0.269	<0.277	<0.270	<0.328	<0.337	<0.360	<0.300	<0.321 [<0.312]	<0.267	<0.272	<0.272	<0.273	<0.278	<0.376
Chromium	mg/kg	4.13	1.61	4.35	1.79	1.9	4.37	4.24	4.74 [6.00]	2.16	2.36	3.06	4.23	2.2	11
Cobalt	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.94	<2.06	<1.96	<1.70	<2.49	<1.58	<1.86	<1.56 [<1.99]	<1.86	<2.03	<1.98	<1.82	<2.01	<19.3
Lead	mg/kg	<1.34	<1.38	1.36	<1.64	<1.68	<1.80	<1.50	<1.60 [<1.56]	<1.33	<1.36	<1.36	<1.36	<1.39	<1.88
Mercury	mg/kg	<0.0336	<0.0346 Z	<0.0338	0.00831 J	0.00774 J	<0.0450	0.0339 J	0.00889 J [0.0108 J]	<0.0334	<0.0341	<0.0340	<0.0341	<0.0348	0.00706 J
Nickel	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	<2.69	<2.77	<2.70	2.33 J	<3.37	<3.60	<3.00	<3.21 [<3.12]	<2.67	<2.72	<2.72	<2.73	<2.78	<3.76
Silver	mg/kg	<0.336	<0.346	<0.338	<0.410	<0.421	<0.450	<0.375	<0.401 [<0.389]	<0.334	<0.341	<0.340	<0.341	<0.348	<0.469
Thallium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,4,5-Tetrachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Chloronaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Methylnaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
1-Naphthylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,3,4,6-Tetrachlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4,5-Trichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4,6-Trichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dimethylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dinitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,4-Dinitrotoluene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,6-Dichlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2,6-Dinitrotoluene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Chloronaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Chlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Methylnaphthalene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Naphthylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Nitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
2-Picoline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3,3'-Dichlorobenzidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Methylcholanthrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Methylphenol/4-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
3-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4,6-Dinitro-2-methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Aminobiphenyl	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Bromophenyl-phenylether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chloro-3-Methylphenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chloroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Chlorophenyl-phenylether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Nitroaniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
4-Nitrophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
7,12-Dimethylbenz(a)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
a,a'-Dimethylphenethylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Acenaphthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Acenaphthylene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN3-SB-03 0.3 - 0.9 12/10/09 LAGN3-SB-03	LAGN3-SB-04 0.3 - 0.9 12/10/09 LAGN3-SB-04	LAGN3-SB-05 0.3 - 0.9 12/10/09 LAGN3-SB-05	LAGN3-SL-01 0 12/10/09 LAGN3-SL-01	LAGN3-SL-02 0 12/10/09 LAGN3-SL-02	LAGN3-SL-03 0 12/10/09 LAGN3-SL-03	LAGN3-SL-04 0 12/10/09 LAGN3-SL-04	LAGN3-SL-05 0 12/10/09 LAGN3-SL-05	LAGN4-SB-01 0.3 - 0.9 12/09/09 LAGN4-SB-01	LAGN4-SB-02 0.3 - 0.9 12/09/09 LAGN4-SB-02	LAGN4-SB-03 0.3 - 0.9 12/09/09 LAGN4-SB-03	LAGN4-SB-04 0.3 - 0.9 12/09/09 LAGN4-SB-04	LAGN4-SB-05 0.3 - 0.9 12/09/09 LAGN4-SB-05	LAGN4-SL-01 0 12/09/09 LAGN4-SL-01
Acetophenone	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Aniline	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(a)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(a)pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(b)fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(g,h,i)perylene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzo(k)fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzoic Acid	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Benzyl Alcohol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Bis (2-Chloroisopropyl) Ether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Chloroethoxy)methane	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Chloroethyl)ether	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
bis(2-Ethylhexyl)phthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Butylbenzylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Chrysene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenz(a,j)acridine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenzo(a,h)anthracene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dibenzofuran	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diethylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Dimethylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Di-n-Butylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Di-n-Octylphthalate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diphenylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Diphenylhydrazine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Ethyl Methanesulfonate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Fluoranthene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Fluorene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachlorocyclopentadiene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Hexachloroethane	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Indeno(1,2,3-cd)pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Isophorone	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Methyl Methanesulfonate	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Nitrobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitrosodimethylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitroso-di-n-butylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitroso-di-n-propylamine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
N-Nitrosopiperidine	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
p-Dimethylaminoazobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachlorobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachloronitrobenzene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pentachlorophenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenacetin	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenanthrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Phenol	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pronamide	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pyrene	mg/kg	<0.34	<0.35	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
Pyridine	mg/kg	<0.34	<0.35 Z	<0.34	<10	<0.42	<4.5	<1.9	<0.40 [<0.39]	<0.33	<0.34	<0.34	<0.34	<0.35	<0.47
VOCs															
1,1,1,2-Tetrachloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,1-Trichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,2,2-Tetrachloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1,2-Trichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,1-Dichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	0.0013 J	<0.0027	<0.0027	<0.0027	<0.0028	0.006
1,1-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN3-SB-03 0.3 - 0.9 12/10/09 LAGN3-SB-03	LAGN3-SB-04 0.3 - 0.9 12/10/09 LAGN3-SB-04	LAGN3-SB-05 0.3 - 0.9 12/10/09 LAGN3-SB-05	LAGN3-SL-01 0 12/10/09 LAGN3-SL-01	LAGN3-SL-02 0 12/10/09 LAGN3-SL-02	LAGN3-SL-03 0 12/10/09 LAGN3-SL-03	LAGN3-SL-04 0 12/10/09 LAGN3-SL-04	LAGN3-SL-05 0 12/10/09 LAGN3-SL-05	LAGN4-SB-01 0.3 - 0.9 12/09/09 LAGN4-SB-01	LAGN4-SB-02 0.3 - 0.9 12/09/09 LAGN4-SB-02	LAGN4-SB-03 0.3 - 0.9 12/09/09 LAGN4-SB-03	LAGN4-SB-04 0.3 - 0.9 12/09/09 LAGN4-SB-04	LAGN4-SB-05 0.3 - 0.9 12/09/09 LAGN4-SB-05	LAGN4-SL-01 0 12/09/09 LAGN4-SL-01
1,1-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,3-Trichlorobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,3-Trichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2,4-Trimethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dibromo-3-chloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dibromoethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dichloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,2-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,3,5-Trimethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
1,3-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2,2-Dichloropropane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Butanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	0.0095
2-Chloroethylvinylether	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Chlorotoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
2-Hexanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
4-Chlorotoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
4-Methyl-2-pentanone	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Acetone	mg/kg	<0.0067	<0.0069	<0.0068	<0.0082	<0.0050	<0.0090	<0.0050	<0.0080 [<0.0078]	<0.0067	<0.0068	<0.0068	<0.0068	0.014	0.073
Acrylonitrile	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Benzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromochloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromodichloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromoform	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Bromomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Carbon Disulfide	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	0.0033 J
Carbon Tetrachloride	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chlorobenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloroethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloroform	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Chloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
cis-1,2-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
cis-1,3-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dibromochloromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dibromomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Dichlorodifluoromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Ethylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Iodomethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Isopropylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
m,p-Xylene	mg/kg	<0.0054	<0.0055	<0.0054	<0.0066	<0.0040	<0.0072	<0.0040	<0.0064 [<0.0062]	<0.0053	<0.0055	<0.0055	<0.0055	<0.0056	<0.0075
Methyl tert-butyl ether	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Methylene Chloride	mg/kg	<0.0067	<0.0069	<0.0068	0.014 B	<0.0050	<0.0090	<0.0050	<0.0080 [0.0064 JB]	<0.0067	<0.0068	<0.0068	<0.0068	<0.0070	<0.0094
n-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
n-Propylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
o-Xylene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
p-Isopropyltoluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
sec-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Styrene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
tert-Butylbenzene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Tetrachloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Toluene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,2-Dichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,3-Dichloropropene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
trans-1,4-Dichloro-2-butene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Trichloroethene	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Trichlorofluoromethane	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038
Vinyl Chloride	mg/kg	<0.0027	<0.0028	<0.0027	<0.0033	<0.0020	<0.0036	<0.0020	<0.0032 [<0.0031]	<0.0027	<0.0027	<0.0027	<0.0027	<0.0028	<0.0038

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
Metals					
Antimony	mg/kg	NA	NA	NA	NA
Arsenic	mg/kg	<2.00	1.41 J	<2.00	<2.00
Barium	mg/kg	65.1	110	66.3	83
Beryllium	mg/kg	NA	NA	NA	NA
Cadmium	mg/kg	<1.36	<0.674	<0.829	<0.454
Chromium	mg/kg	27.1	23.9	6.84	17.6
Cobalt	mg/kg	NA	NA	NA	NA
Copper	mg/kg	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<3.33	<4.19	<4.58	<1.56
Lead	mg/kg	<6.82	<3.37	<4.14	<2.27
Mercury	mg/kg	0.0236 J	0.0314 J	0.0139 J	0.0156 J
Nickel	mg/kg	NA	NA	NA	NA
Selenium	mg/kg	<13.6	<6.74	<8.29	<4.54
Silver	mg/kg	<1.70	<0.843	<1.04	<0.567
Thallium	mg/kg	NA	NA	NA	NA
Tin	mg/kg	NA	NA	NA	NA
Vanadium	mg/kg	NA	NA	NA	NA
Zinc	mg/kg	NA	NA	NA	NA
SVOCs					
1,2,4,5-Tetrachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Chloronaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Methylnaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
1-Naphthylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
2,3,4,6-Tetrachlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4,5-Trichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4,6-Trichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dimethylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dinitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,4-Dinitrotoluene	mg/kg	<1.7	<0.84	<1.0	<0.57
2,6-Dichlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2,6-Dinitrotoluene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Chloronaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Chlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Methylnaphthalene	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Naphthylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Nitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
2-Picoline	mg/kg	<1.7	<0.84	<1.0	<0.57
3,3'-Dichlorobenzidine	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Methylcholanthrene	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Methylphenol/4-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
3-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4,6-Dinitro-2-methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Aminobiphenyl	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Bromophenyl-phenylether	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chloro-3-Methylphenol	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chloroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Chlorophenyl-phenylether	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Nitroaniline	mg/kg	<1.7	<0.84	<1.0	<0.57
4-Nitrophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
7,12-Dimethylbenz(a)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
a,a'-Dimethylphenethylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
Acenaphthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Acenaphthylene	mg/kg	<1.7	<0.84	<1.0	<0.57

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
Acetophenone	mg/kg	<1.7	<0.84	<1.0	<0.57
Aniline	mg/kg	<1.7	<0.84	<1.0	<0.57
Anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzidine	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(a)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(a)pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(b)fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(g,h,i)perylene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzo(k)fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzoic Acid	mg/kg	<1.7	<0.84	<1.0	<0.57
Benzyl Alcohol	mg/kg	<1.7	<0.84	<1.0	<0.57
Bis (2-Chloroisopropyl) Ether	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Chloroethoxy)methane	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Chloroethyl)ether	mg/kg	<1.7	<0.84	<1.0	<0.57
bis(2-Ethylhexyl)phthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Butylbenzylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Chrysene	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenz(a,j)acridine	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenzo(a,h)anthracene	mg/kg	<1.7	<0.84	<1.0	<0.57
Dibenzofuran	mg/kg	<1.7	<0.84	<1.0	<0.57
Diethylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Dimethylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Di-n-Butylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Di-n-Octylphthalate	mg/kg	<1.7	<0.84	<1.0	<0.57
Diphenylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
Diphenylhydrazine	mg/kg	<1.7	<0.84	<1.0	<0.57
Ethyl Methanesulfonate	mg/kg	<1.7	<0.84	<1.0	<0.57
Fluoranthene	mg/kg	<1.7	<0.84	<1.0	<0.57
Fluorene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachlorocyclopentadiene	mg/kg	<1.7	<0.84	<1.0	<0.57
Hexachloroethane	mg/kg	<1.7	<0.84	<1.0	<0.57
Indeno(1,2,3-cd)pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Isophorone	mg/kg	<1.7	<0.84	<1.0	<0.57
Methyl Methanesulfonate	mg/kg	<1.7	<0.84	<1.0	<0.57
Nitrobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitrosodimethylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitroso-di-n-butylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitroso-di-n-propylamine	mg/kg	<1.7	<0.84	<1.0	<0.57
N-Nitrosopiperidine	mg/kg	<1.7	<0.84	<1.0	<0.57
p-Dimethylaminoazobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachlorobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachloronitrobenzene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pentachlorophenol	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenacetin	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenanthrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Phenol	mg/kg	<1.7	<0.84	<1.0	<0.57
Pronamide	mg/kg	<1.7	<0.84	<1.0	<0.57
Pyrene	mg/kg	<1.7	<0.84	<1.0	<0.57
Pyridine	mg/kg	<1.7	<0.84	<1.0	<0.57
VOCs					
1,1,1,2-Tetrachloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,1-Trichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,2,2-Tetrachloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1,2-Trichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,1-Dichloroethane	mg/kg	<0.014	<0.0067	0.0056 J	<0.0045
1,1-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045

Table E.4.Attachment 3
Soil and Sludge Risk Assessment Dataset
Total Depth Interval
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Field Notes:	Units	LAGN4-SL-02 0 12/09/09 LAGN4-SL-02	LAGN4-SL-03 0 12/09/09 LAGN4-SL-03	LAGN4-SL-04 0 12/09/09 LAGN4-SL-04	LAGN4-SL-05 0 12/09/09 LAGN4-SL-05
1,1-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,3-Trichlorobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,3-Trichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2,4-Trimethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dibromo-3-chloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dibromoethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dichloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,2-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,3,5-Trimethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
1,3-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2,2-Dichloropropane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Butanone	mg/kg	0.046	<0.0067	0.022	<0.0045
2-Chloroethylvinylether	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Chlorotoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
2-Hexanone	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
4-Chlorotoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
4-Methyl-2-pentanone	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Acetone	mg/kg	0.4	<0.017	0.15	<0.011
Acrylonitrile	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Benzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromochloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromodichloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromoform	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Bromomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Carbon Disulfide	mg/kg	0.037	<0.0067	0.0068 J	<0.0045
Carbon Tetrachloride	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chlorobenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloroethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloroform	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Chloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
cis-1,2-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
cis-1,3-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dibromochloromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dibromomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Dichlorodifluoromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Ethylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Iodomethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Isopropylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
m,p-Xylene	mg/kg	<0.027	<0.014	<0.017	<0.0091
Methyl tert-butyl ether	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Methylene Chloride	mg/kg	<0.034	<0.017	<0.021	<0.011
n-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
n-Propylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
o-Xylene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
p-Isopropyltoluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
sec-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Styrene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
tert-Butylbenzene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Tetrachloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Toluene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,2-Dichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,3-Dichloropropene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
trans-1,4-Dichloro-2-butene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Trichloroethene	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Trichlorofluoromethane	mg/kg	<0.014	<0.0067	<0.0083	<0.0045
Vinyl Chloride	mg/kg	<0.014	<0.0067	<0.0083	<0.0045

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-01 11/16/04	HMW-01 10/24/05	HMW-01 12/15/06	HMW-01 03/04/08	HMW-01 05/01/08	HMW-02 11/16/04	HMW-02 10/21/05	HMW-02 12/13/06	HMW-02 02/28/08	HMW-02 05/01/08
Explosives														
2,4,6-Trinitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DNT / 2,4-DNT	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals														
Antimony	mg/L	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	NA	NA	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/L	NA	NA	<0.00250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	0.002	<0.00100 [<0.00100]	<0.00200	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chromium	mg/L	0.033	0.250 [0.225]	0.866	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Cobalt	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	<0.00500	0.0290 [0.0260]	0.07	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Lead	mg/L	<0.00500	<0.00500 [<0.00500]	<0.0100	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Mercury	mg/L	NA	NA	<0.000200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	NA	NA	0.366	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/L	NA	NA	0.247	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	<0.00200	<0.00200 [<0.00200]	<0.00500	NA	NA	<0.00200	NA	NA	NA	NA	<0.00200	NA	NA
Sodium	mg/L	12,100	13,500 [12,400]	NA	NA	NA	6,960	NA	NA	NA	NA	351	NA	NA
Thallium	mg/L	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tim	mg/L	NA	NA	<0.0250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	NA	NA	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/L	<0.00500	<0.00500 [<0.00500]	<0.0100	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Metals-Dissolved														
Boron, Dissolved	mg/L	NA	NA	NA	4.31	5.37	NA	NA	NA	1.48 [1.46]	0.821 [0.829]	NA	NA	NA
Cadmium, Dissolved	mg/L	0.002	<0.00100 [<0.00100]	NA	NA	NA	<0.00100	NA	NA	NA	NA	0.002	NA	NA
Chromium, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Copper, Dissolved	mg/L	<0.0125	<0.0125 [<0.0125]	NA	NA	NA	<0.0125	NA	NA	NA	NA	<0.0125	NA	NA
Lead, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Molybdenum, Dissolved	mg/L	NA	NA	NA	0.635	0.798	NA	NA	NA	0.0900 [0.0870]	0.0550 [0.0560]	NA	NA	NA
Selenium, Dissolved	mg/L	NA	NA	NA	<0.0100	0.099	NA	NA	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	NA	NA
Silver, Dissolved	mg/L	<0.00200	<0.00200 [<0.00200]	NA	NA	NA	<0.00200	NA	NA	NA	NA	<0.00200	NA	NA
Sodium, Dissolved	mg/L	11,400	12,600 [12,200]	NA	NA	NA	7,760	NA	NA	NA	NA	430	NA	NA
Zinc, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Parameters														
Alkalinity	mg/L	134	182 [182]	178	NA	NA	170	NA	NA	NA	NA	308	NA	NA
Alkalinity, Bicarbonate	mg/L	134	182 [182]	178	NA	NA	170	NA	NA	NA	NA	308	NA	NA
Alkalinity, Carbonate	mg/L	<1.00	<1.00 [<1.00]	<1.00	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
Ammonia	mg/L	<1.00	<1.00 [<1.00]	NA	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
Bromide	mg/L	2.13	3.62 [3.64]	8.22	NA	NA	7.78	NA	NA	NA	NA	<1.00	NA	NA
Chloride (Cl)	mg/L	13,200	16,800 [17,400]	14,400	3,300	2,780	721	NA	NA	422 [422]	303 [299]	405	NA	NA
Fluoride	mg/L	2.56	7.06 [9.09]	<0.200	7.91	6.91	7.05	NA	NA	5.09 [5.18]	4.81 [4.80]	6.08	NA	NA
Hydroxide Alkalinity	mg/L	<1.00	<1.00 [<1.00]	<1.00	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
Nitrate	mg/L	NA	NA	NA	62.1	59.1	162	NA	NA	3.52 [3.45]	4.75 [4.81]	4.05	NA	NA
Nitrate + Nitrite	mg/L	252	415 [288]	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	NA	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
pH	pH Units	7.91	8.02 [7.99]	7.78	7.16	NA	7.79	7.31	7.49	7.10 [7.10]	NA	7.28	7.18	7.15
Phosphorus	mg/L	<0.0500	0.0670 [0.0670]	NA	NA	NA	0.058	NA	NA	NA	NA	0.057	NA	NA
Sulfate	mg/L	22,200	21,900 [22,700]	16,700	13,400	12,700	1,520	NA	NA	2,740 [2,740]	2,390 [2,370]	2,590	NA	NA
Temperature	deg c	17.2	18.1	21.9	11.7	NA	16.9	18.6	18.6	10.9 [10.9]	NA	18.9	18.7	19.4
Total Dissolved Solids	mg/L	46,800	51,900 [53,200]	51,100	25,600	24,400	30,800	NA	NA	5,530 [5,630]	4,610 [4,420]	4,640	NA	NA
Total Organic Carbon	mg/L	NA	NA	5.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-01 11/16/04	HMW-01 10/24/05	HMW-01 12/15/06	HMW-01 03/04/08	HMW-01 05/01/08	HMW-02 11/16/04	HMW-02 10/21/05	HMW-02 12/13/06	HMW-02 02/28/08	HMW-02 05/01/08
SVOCs														
1,2,3-Trichlorobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2,4,5-Tetrachlorobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2,4-Trichlorobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2,4-Trimethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Benzphenanthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,3,5-Trinitrobenzene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	mg/L	<0.00100	<0.00100 [<0.00500]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1-Chloronaphthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1-Methylnaphthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1-Naphthylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4,5-Trichlorophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
2,4-Dichlorophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,6-Dichlorophenol	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
2,4-Dimethylphenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4-Dinitrophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,6-Dinitrophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4-Dinitrotoluene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Butoxy Ethanol	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chloronapthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chorophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methyl pyridine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methylnaphthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methylphenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Naphthylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Nitroaniline	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Nitrophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3,3'-Dichlorobenzidine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3-Methylchloranthrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3-Nitroaniline	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Aminobiphenyl	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Bromophenyl phenyl ether	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Chlorophenyl phenyl ether	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Chlorotoluene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
4-Dimethylaminoazobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Methyl-2-pentanone (MIBK)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Nitrophenol	mg/L	<0.0250	<0.0250 [<0.0250]	<0.0250	NA	NA	<0.0250	NA	NA	NA	NA	<0.0250	NA	NA
7,12-Dimethylbenz(a)anthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Acenaphthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Acenaphthylene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Acetophenone	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Aniline	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Anthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzidine	mg/L	<0.0250	<0.0250 [<0.0250]	<0.0250	NA	NA	<0.0250	NA	NA	NA	NA	<0.0250	NA	NA
Benzo(a)anthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(a)pyrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzoic acid	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzyl alcohol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzyl butyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
bis(2-Chloroethoxy)methane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
bis(2-Chloroethyl)ether	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
bis(2-Ethylhexyl)phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Chlorophenols	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Cymene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-01 11/16/04	HMW-01 10/24/05	HMW-01 12/15/06	HMW-01 03/04/08	HMW-01 05/01/08	HMW-02 11/16/04	HMW-02 10/21/05	HMW-02 12/13/06	HMW-02 02/28/08	HMW-02 05/01/08
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Dibenz(a,j)acridine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Dibenzofuran	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Diethyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Dimethyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Diphenylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Diphenylhydrazine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Ethyl methanesulfonate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Fluoranthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Fluorene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachloro-1,3-butadiene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachlorobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachlorocyclopentadiene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachloroethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
m,p-Cresol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
m-Dichlorobenzene	mg/L	<0.00100	<0.00100 [<0.00500]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Methanamine, n-methyl-n-nitroso	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Methyl methanesulfonate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Nitrobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.000500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Nitrosodi-n-butylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Nitrosopiperidine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Chloroaniline	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pentachlorobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pentachloronitrobenzene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pentachlorophenol	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Phenacetin	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Phenanthrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Phenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
p-Nitroaniline	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Propyzamide	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pyrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pyridine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
TPHs														
Diesel Range Organics (DRO)	mg/L	<5.00	<5.00 [<5.00]	<5.00	NA	NA	<5.00	NA	NA	NA	NA	<5.00	NA	NA
Gasoline Range Organics (GRO)	mg/L	<0.100	<0.100 [<0.100]	<0.100	NA	NA	<0.100	NA	NA	NA	NA	<0.100	NA	NA
VOCs														
1,1,1,2-Tetrachloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1,2,2-Tetrachloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1,2-Trichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1-Dichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1-Dichloroethylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dibromo-3-Chloropropane (DBCP)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2-Dibromoethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dichlorobenzene	mg/L	<0.00100	<0.00100 [<0.00500]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,3-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,4-Dioxane	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,2-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
2-butanone	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chloroethyl vinyl ether	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chlorotoluene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Acetone	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Acrylonitrile	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Benzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-01 11/16/04	HMW-01 10/24/05	HMW-01 12/15/06	HMW-01 03/04/08	HMW-01 05/01/08	HMW-02 11/16/04	HMW-02 10/21/05	HMW-02 12/13/06	HMW-02 02/28/08	HMW-02 05/01/08
bis(2-Chloroisopropyl)ether	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Bromobenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Bromodichloromethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Bromomethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Carbon disulfide	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Carbon tetrachloride	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
CFC-11	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
CFC-12	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chlorobenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chlorobromomethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chlorodibromomethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Choroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chloroform	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chloromethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Dibromomethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Dichloromethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Ethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Iodomethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Isopropyl alcohol	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
m,p-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
m-Dinitrobenzene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl n-butyl ketone	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Methylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Methyl tert butyl ether (MTBE)	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Naphthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
n-Propylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
o-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
sec-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Styrene (monomer)	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
tert-Butyl alcohol	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Tetrachloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
trans-1,4-Dichlorobutene	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Tribomomethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Trichloroethylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Vinyl Chloride	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-03 11/16/04	HMW-03 10/21/05	HMW-03 12/14/06	HMW-03 03/04/08	HMW-03 05/01/08	HMW-04 11/16/04	HMW-04 10/25/05	HMW-04 12/13/06	HMW-04 03/04/08	HMW-04 05/01/08
Explosives											
2,4,6-Trinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DNT / 2,4-DNT	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RDX	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRYL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals											
Antimony	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chromium	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Cobalt	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Lead	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/L	NA	NA	<0.00200	NA	NA	NA	NA	<0.00200	NA	NA
Sodium	mg/L	NA	NA	312	NA	NA	NA	NA	4,340	NA	NA
Thallium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tim	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Metals-Dissolved											
Boron, Dissolved	mg/L	1.66	1.53	NA	NA	NA	5.2	5.59	NA	NA	NA
Cadmium, Dissolved	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	0.002	NA	NA
Chromium, Dissolved	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Copper, Dissolved	mg/L	NA	NA	<0.0125	NA	NA	NA	NA	<0.0125	NA	NA
Lead, Dissolved	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Molybdenum, Dissolved	mg/L	0.12	0.126	NA	NA	NA	0.545	0.638	NA	NA	NA
Selenium, Dissolved	mg/L	<0.0100	<0.0100	NA	NA	NA	<0.0100	0.117	NA	NA	NA
Silver, Dissolved	mg/L	NA	NA	<0.00200	NA	NA	NA	NA	<0.00200	NA	NA
Sodium, Dissolved	mg/L	NA	NA	312	NA	NA	NA	NA	3,340	NA	NA
Zinc, Dissolved	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Parameters											
Alkalinity	mg/L	NA	NA	338	NA	NA	NA	NA	110	NA	NA
Alkalinity, Bicarbonate	mg/L	NA	NA	338	NA	NA	NA	NA	110	NA	NA
Alkalinity, Carbonate	mg/L	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
Ammonia	mg/L	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
Bromide	mg/L	NA	NA	<1.00	NA	NA	NA	NA	4.13	NA	NA
Chloride (Cl)	mg/L	187	202	370	NA	NA	1,860	1,730	1,600	NA	NA
Fluoride	mg/L	4.86	4.8	6.14	NA	NA	6.13	5.75	11.2	NA	NA
Hydroxide Alkalinity	mg/L	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
Nitrate	mg/L	<0.100	4.75	5.14	NA	NA	77.5	67.7	4.04	NA	NA
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	<1.00	NA	NA	NA	NA	<1.00	NA	NA
pH	pH Units	6.5	7.25	7.32	7.07	7.63	6.09	NA	7.65	6.99	7.41
Phosphorus	mg/L	NA	NA	0.059	NA	NA	NA	NA	0.08	NA	NA
Sulfate	mg/L	2,620	2,390	2,610	NA	NA	9,470	9,420	11,400	NA	NA
Temperature	deg c	14.6	19.8	17.7	16.9	19.3	13.5	NA	17.5	18.1	18.2
Total Dissolved Solids	mg/L	4,460	4,420	4,720	NA	NA	18,400	23,000	16,700	NA	NA
Total Organic Carbon	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-03 11/16/04	HMW-03 10/21/05	HMW-03 12/14/06	HMW-03 03/04/08	HMW-03 05/01/08	HMW-04 11/16/04	HMW-04 10/25/05	HMW-04 12/13/06	HMW-04 03/04/08	HMW-04 05/01/08
SVOCs											
1,2,3-Trichlorobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2,4,5-Tetrachlorobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2,4-Trichlorobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2,4-Trimethylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Benzphenanthracene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,3,5-Trimethylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,3,5-Trinitrobenzene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1-Chloronaphthalene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1-Methylnaphthalene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1-Naphthylamine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4,5-Trichlorophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4,6-Trichlorophenol	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
2,4-Dichlorophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,6-Dichlorophenol	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
2,4-Dimethylphenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4-Dinitrophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,6-Dinitrophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,4-Dinitrotoluene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Butoxy Ethanol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chloronapthalene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chorophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methyl pyridine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methylnaphthalene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Methylphenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Naphthylamine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Nitroaniline	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Nitrophenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3,3'-Dichlorobenzidine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3,5,5-Trimethyl-2-cyclohexene-1-one	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3-Methylchloranthrene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
3-Nitroaniline	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Aminobiphenyl	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Bromophenyl phenyl ether	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Chloro-3-methylphenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Chlorophenyl phenyl ether	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Chlorotoluene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
4-Dimethylaminoazobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Methyl-2-pentanone (MIBK)	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
4-Nitrophenol	mg/L	NA	NA	<0.0250	NA	NA	NA	NA	<0.0250	NA	NA
7,12-Dimethylbenz(a)anthracene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
a,a-Dimethylphenethylamine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Acenaphthene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Acenaphthylene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Acetophenone	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Aniline	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Anthracene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzidine	mg/L	NA	NA	<0.0250	NA	NA	NA	NA	<0.0250	NA	NA
Benzo(a)anthracene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(a)pyrene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(b)fluoranthene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(g,h,i)perylene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzo(k)fluoranthene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzoic acid	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzyl alcohol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Benzyl butyl phthalate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
bis(2-Chloroethoxy)methane	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
bis(2-Chloroethyl)ether	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
bis(2-Ethylhexyl)phthalate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Chlorophenols	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Cymene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-03 11/16/04	HMW-03 10/21/05	HMW-03 12/14/06	HMW-03 03/04/08	HMW-03 05/01/08	HMW-04 11/16/04	HMW-04 10/25/05	HMW-04 12/13/06	HMW-04 03/04/08	HMW-04 05/01/08
Dibenz(a,h)anthracene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Dibenz(a,j)acridine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Dibenzofuran	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Diethyl phthalate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Dimethyl phthalate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Di-n-butyl phthalate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Di-n-octyl phthalate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Diphenylamine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Diphenylhydrazine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Ethyl methanesulfonate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Fluoranthene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Fluorene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachloro-1,3-butadiene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachlorobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachlorocyclopentadiene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Hexachloroethane	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Indeno(1,2,3-cd)pyrene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
m,p-Cresol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
m-Dichlorobenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Methanamine, n-methyl-n-nitroso	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Methyl methanesulfonate	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Nitrobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Nitrosodi-n-butylamine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Nitrosodi-n-propylamine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Nitrosopiperidine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Chloroaniline	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pentachlorobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pentachloronitrobenzene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pentachlorophenol	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Phenacetin	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Phenanthrene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Phenol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
p-Nitroaniline	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Propyzamide	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pyrene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Pyridine	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
TPHs											
Diesel Range Organics (DRO)	mg/L	NA	NA	<5.00	NA	NA	NA	NA	<5.00	NA	NA
Gasoline Range Organics (GRO)	mg/L	NA	NA	<0.100	NA	NA	NA	NA	<0.500	NA	NA
VOCs											
1,1,1,2-Tetrachloroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1,1-Trichloroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1,2,2-Tetrachloroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1,2-Trichloroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,1-Dichloroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	0.00362	NA	NA
1,1-Dichloroethylene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	0.00543	NA	NA
1,1-Dichloropropene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2,3-Trichloropropane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dibromo-3-Chloropropane (DBCP)	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
1,2-Dibromoethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dichlorobenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dichloroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,2-Dichloropropane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,3-Dichloropropane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
1,4-Dioxane	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2,2-Dichloropropane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
2-butanone	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chloroethyl vinyl ether	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
2-Chlorotoluene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Acetone	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Acrylonitrile	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Benzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA

Table E.4.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 27
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-03 11/16/04	HMW-03 10/21/05	HMW-03 12/14/06	HMW-03 03/04/08	HMW-03 05/01/08	HMW-04 11/16/04	HMW-04 10/25/05	HMW-04 12/13/06	HMW-04 03/04/08	HMW-04 05/01/08
bis(2-Chloroisopropyl)ether	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Bromobenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Bromodichloromethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Bromomethane	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Carbon disulfide	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Carbon tetrachloride	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
CFC-11	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
CFC-12	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chlorobenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chlorobromomethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chlorodibromomethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Choroethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Chloroform	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	0.00137	NA	NA
Chloromethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
cis-1,2-Dichloroethene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
cis-1,3-Dichloropropene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Dibromomethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Dichloromethane	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Ethylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Iodomethane	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Isopropyl alcohol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Isopropylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
m,p-Xylene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
m-Dinitrobenzene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl n-butyl ketone	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
Methylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Methyl tert butyl ether (MTBE)	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Naphthalene	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
n-Butylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
n-Propylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
o-Xylene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
sec-Butylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Styrene (monomer)	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
tert-Butyl alcohol	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA
tert-Butylbenzene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Tetrachloroethene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
trans-1,2-Dichloroethene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
trans-1,3-Dichloropropene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
trans-1,4-Dichlorobutene	mg/L	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA
Tribomomethane	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Trichloroethylene	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA
Vinyl Chloride	mg/L	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA

Notes for E.5.Attachments 1-3
Risk Assessment Datasets
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

<	=	Result is non-detect
[ ]	=	Indicates field duplicate result
ft	=	Foot
mg/kg	=	Milligrams per kilogram
mg/L	=	Milligrams per liter
NA	=	Not available
SVOC	=	Semi-volatile Organic Compound
VOC	=	Volatile Organic Compound
TPH	=	Total Petroleum Hydrocarbons

Table E.5.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-029 0.5 - 1 09/27/06 HLSF-0085-SB-029 (0.5-1.0)	HLSF-SB-030 0.5 - 1 09/27/06 HLSF-0085-SB-030 (0.5-1.0)	HLSF-SB-031 0.5 - 1 09/27/06 HLSF-0085-SB-031 (0.5-1.0)
Metals				
ARSENIC	mg/kg	<2.00	<2.00	<2.00
BARIUM	mg/kg	27.6	26.3	27
CADMIUM	mg/kg	<0.100	<0.100	<0.100
Chromium	mg/kg	3.11	2.97	3.18
Hexavalent Chromium	mg/kg	<0.400	<0.400	<0.400
LEAD	mg/kg	<1.00	3.3	<1.00
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400
POTASSIUM	mg/kg	67.7	349	368
SELENIUM	mg/kg	<1.00	<1.00	<1.00
SILVER	mg/kg	<0.0500	<0.0500	<0.0500
SODIUM	mg/kg	<50.0	<50.0	262
ZINC	mg/kg	3.75	4.55	43
Other				
FOC	%	6.32	6.52	6.26
Parameters				
Phosphorus	mg/kg	55.4	80.1	78.9
SVOCs				
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
TPHs				
DRO	mg/kg	<50.0	<50.0	<50.0
GRO	mg/kg	<1.00	<1.00	<1.00
VOCs				
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-029 0.5 - 1 09/27/06 HLSF-0085-SB-029 (0.5-1.0)	HLSF-SB-030 0.5 - 1 09/27/06 HLSF-0085-SB-030 (0.5-1.0)	HLSF-SB-031 0.5 - 1 09/27/06 HLSF-0085-SB-031 (0.5-1.0)
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-029	HLSF-SB-030	HLSF-SB-031
Sample Depth(ft):		0.5 - 1	0.5 - 1	0.5 - 1
Date Collected:		09/27/06	09/27/06	09/27/06
Sample Name:	Units	HLSF-0085-SB-029 (0.5-1.0)	HLSF-0085-SB-030 (0.5-1.0)	HLSF-0085-SB-031 (0.5-1.0)
Metals				
ARSENIC	mg/kg	<2.00	<2.00	<2.00
BARIUM	mg/kg	27.6	26.3	27
CADMIUM	mg/kg	<0.100	<0.100	<0.100
Chromium	mg/kg	3.11	2.97	3.18
Hexavalent Chromium	mg/kg	<0.400	<0.400	<0.400
LEAD	mg/kg	<1.00	3.3	<1.00
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400
POTASSIUM	mg/kg	67.7	349	368
SELENIUM	mg/kg	<1.00	<1.00	<1.00
SILVER	mg/kg	<0.0500	<0.0500	<0.0500
SODIUM	mg/kg	<50.0	<50.0	262
ZINC	mg/kg	3.75	4.55	43
Other				
FOC	%	6.32	6.52	6.26
Parameters				
Phosphorus	mg/kg	55.4	80.1	78.9
SVOCs				
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
TPHs				
DRO	mg/kg	<50.0	<50.0	<50.0
GRO	mg/kg	<1.00	<1.00	<1.00
VOCs				
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-029 0.5 - 1 09/27/06 HLSF-0085-SB-029 (0.5-1.0)	HLSF-SB-030 0.5 - 1 09/27/06 HLSF-0085-SB-030 (0.5-1.0)	HLSF-SB-031 0.5 - 1 09/27/06 HLSF-0085-SB-031 (0.5-1.0)
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-029 0.5 - 1 09/27/06 HLSF-0085-SB-029 (0.5-1.0)	HLSF-SB-029 10 - 10.5 10/10/06 HLSF-0085-SB-029 (10.0-10.5)	HLSF-SB-029 20 - 21 10/10/06 HLSF-0085-SB-029 (20.0-21.0)	HLSF-SB-029 30 - 31 10/10/06 HLSF-0085-SB-029 (30.0-31.0)	HLSF-SB-029 40 - 41 10/10/06 HLSF-0085-SB-029 (40.0-41.0)	HLSF-SB-029 49 - 50 10/10/06 HLSF-0085-SB-029 (49.0-50.0)
Metals							
ARSENIC	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	4.23
BARIUM	mg/kg	27.6	56.6	121	62.9	127	152
CADMIUM	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chromium	mg/kg	3.11	4.84	13.6	8.82	15.3	14.5
Hexavalent Chromium	mg/kg	<0.400	<5.00	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	<1.00	8.52	23.4	17.4	31.8	26.5
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
POTASSIUM	mg/kg	67.7	1,410	3,460	2,200	4,010	3,190
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
SODIUM	mg/kg	<50.0	397	3,660	2,720	5,180	4,520
ZINC	mg/kg	3.75	9.86	41	26.2	50	51.4
Other							
FOC	%	6.32	2.34	2.21	2.18	1.07	3.36
Parameters							
Phosphorus	mg/kg	55.4	65.9	294	243	270	300
SVOCs							
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TPHs							
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
VOCs							
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-029 0.5 - 1 09/27/06 HLSF-0085-SB-029 (0.5-1.0)	HLSF-SB-029 10 - 10.5 10/10/06 HLSF-0085-SB-029 (10.0-10.5)	HLSF-SB-029 20 - 21 10/10/06 HLSF-0085-SB-029 (20.0-21.0)	HLSF-SB-029 30 - 31 10/10/06 HLSF-0085-SB-029 (30.0-31.0)	HLSF-SB-029 40 - 41 10/10/06 HLSF-0085-SB-029 (40.0-41.0)	HLSF-SB-029 49 - 50 10/10/06 HLSF-0085-SB-029 (49.0-50.0)
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-030 0.5 - 1 09/27/06 HLSF-0085-SB-030 (0.5-1.0)	HLSF-SB-030 10 - 11 10/11/06 HLSF-0085-SB-030 (10.0-11.0)	HLSF-SB-030 20 - 22 10/11/06 HLSF-0085-SB-030 (20.0-22.0)	HLSF-SB-030 30 - 31 10/11/06 HLSF-0085-SB-030 (30.0-31.0)	HLSF-SB-030 40 - 41 10/11/06 HLSF-0085-SB-030 (40.0-41.0)	HLSF-SB-030 49 - 50 10/11/06 HLSF-0085-SB-030 (49.0-50.0)
Metals							
ARSENIC	mg/kg	<2.00	2.24	4.94	4.97	3.7	<2.00
BARIUM	mg/kg	26.3	61.8	54.4	45.9	36	100
CADMIUM	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	2.38
Chromium	mg/kg	2.97	4.75	10.8	11.9	11.3	14.2
Hexavalent Chromium	mg/kg	<0.400	<5.00	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	3.3	8.84	19.6	18.2	20.7	39.9
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
POTASSIUM	mg/kg	349	1,500	2,980	3,250	2,670	3,360
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
SODIUM	mg/kg	<50.0	741	2,360	2,700	2,450	4,450
ZINC	mg/kg	4.55	9.81	32.1	29.2	28	102
Other							
FOC	%	6.52	2.15	2.09	2.22	1.29	3.57
Parameters							
Phosphorus	mg/kg	80.1	92.1	228	225	256	390
SVOCs							
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TPHs							
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
VOCs							
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-030 0.5 - 1 09/27/06 HLSF-0085-SB-030 (0.5-1.0)	HLSF-SB-030 10 - 11 10/11/06 HLSF-0085-SB-030 (10.0-11.0)	HLSF-SB-030 20 - 22 10/11/06 HLSF-0085-SB-030 (20.0-22.0)	HLSF-SB-030 30 - 31 10/11/06 HLSF-0085-SB-030 (30.0-31.0)	HLSF-SB-030 40 - 41 10/11/06 HLSF-0085-SB-030 (40.0-41.0)	HLSF-SB-030 49 - 50 10/11/06 HLSF-0085-SB-030 (49.0-50.0)
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-031 0.5 - 1 09/27/06 HLSF-0085-SB-031 (0.5-1.0)	HLSF-SB-031 10 - 11 10/11/06 HLSF-0085-SB-031 (10.0-11.0)	HLSF-SB-031 20 - 21 10/12/06 HLSF-0085-SB-031 (20.0-21.0)	HLSF-SB-031 30 - 31 10/12/06 HLSF-0085-SB-031 (30.0-31.0)	HLSF-SB-031 40 - 41 10/12/06 HLSF-0085-SB-031 (40.0-41.0)	HLSF-SB-031 49 - 50 10/12/06 HLSF-0085-SB-031 (49.0-50.0)
Metals							
ARSENIC	mg/kg	<2.00	<2.00	<1.00	<1.00	<1.00	8.94
BARIUM	mg/kg	27	42.1	118	114	91.2	116
CADMIUM	mg/kg	<0.100	2.07	1.5	1.15	1.06	1.86
Chromium	mg/kg	3.18	3.2	20.5	15.7	14.6	26.4
Hexavalent Chromium	mg/kg	<0.400	<5.00	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	<1.00	10.3	17.1	13.7	12.4	22.7
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
POTASSIUM	mg/kg	368	1,080	4,090	2,670	2,320	3,180
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	<0.0500	<0.0500	<0.200	<0.200	<0.200	<0.200
SODIUM	mg/kg	262	273	3,490	3,590	2,840	4,210
ZINC	mg/kg	43	53.5	46.1	40.5	38	64.5
Other							
FOC	%	6.26	1.68	1.94	2.65	0.921	3.22
Parameters							
Phosphorus	mg/kg	78.9	77.1	285	235	270	348
SVOCs							
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TPHs							
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
VOCs							
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Table E.5.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 31-32
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected: Sample Name:	Units	HLSF-SB-031 0.5 - 1 09/27/06 HLSF-0085-SB-031 (0.5-1.0)	HLSF-SB-031 10 - 11 10/11/06 HLSF-0085-SB-031 (10.0-11.0)	HLSF-SB-031 20 - 21 10/12/06 HLSF-0085-SB-031 (20.0-21.0)	HLSF-SB-031 30 - 31 10/12/06 HLSF-0085-SB-031 (30.0-31.0)	HLSF-SB-031 40 - 41 10/12/06 HLSF-0085-SB-031 (40.0-41.0)	HLSF-SB-031 49 - 50 10/12/06 HLSF-0085-SB-031 (49.0-50.0)
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Notes for E.6.Attachments 1-3
Risk Assessment Datasets
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

<	=	Result is non-detect
[ ]	=	Indicates field duplicate result
ft	=	Foot
mg/kg	=	Milligrams per kilogram
mg/L	=	Milligrams per liter
NA	=	Not available
SVOC	=	Semi-volatile Organic Compound
VOC	=	Volatile Organic Compound
TPH	=	Total Petroleum Hydrocarbons

Table E.6.Attachment 1
Soil Risk Assessment Dataset
Soil 0-2 Foot Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: **Sample Depth(ft):** **Date Collected:**	**Units**	**3334B1** **0** **04/07/92**	**3334B1** **1** **04/07/92**	**3334B1** **2** **04/07/92**	**3334B2** **0** **04/07/92**	**3334B2** **1** **04/07/92**	**3334B2** **2** **04/07/92**	**3334B3** **0** **04/07/92**	**3334B3** **1** **04/07/92**	**3334B3** **2** **04/07/92**	**3334B4** **0** **04/07/92**	**3334B4** **1** **04/07/92**	**3334B4** **2** **04/07/92**
Parameters													
FLUORIDE	mg/kg	0.98	0.49	0.350 [0.370]	0.65	0.510 [0.540]	0.5	0.74	0.49	0.46	0.65	0.48	0.36
pH	pH Units	8	7.8	7.90 [8.00]	7.9	8.10 [8.00]	8	8	7.9	7.8	8.1	7.8	7.5

Table E.6.Attachment 2
Soil Risk Assessment Dataset
Soil 0-10 Foot Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: **Sample Depth(ft):** **Date Collected:**	**Units**	**3334B1** **0** **04/07/92**	**3334B1** **1** **04/07/92**	**3334B1** **2** **04/07/92**	**3334B2** **0** **04/07/92**	**3334B2** **1** **04/07/92**	**3334B2** **2** **04/07/92**	**3334B3** **0** **04/07/92**	**3334B3** **1** **04/07/92**	**3334B3** **2** **04/07/92**	**3334B4** **0** **04/07/92**	**3334B4** **1** **04/07/92**	**3334B4** **2** **04/07/92**
Parameters													
FLUORIDE	mg/kg	0.98	0.49	0.350 [0.370]	0.65	0.510 [0.540]	0.5	0.74	0.49	0.46	0.65	0.48	0.36
pH	pH Units	8	7.8	7.90 [8.00]	7.9	8.10 [8.00]	8	8	7.9	7.8	8.1	7.8	7.5

Table E.6.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 33-34
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: **Sample Depth(ft):** **Date Collected:**	**Units**	**3334B1** **0** **04/07/92**	**3334B1** **1** **04/07/92**	**3334B1** **2** **04/07/92**	**3334B2** **0** **04/07/92**	**3334B2** **1** **04/07/92**	**3334B2** **2** **04/07/92**	**3334B3** **0** **04/07/92**	**3334B3** **1** **04/07/92**	**3334B3** **2** **04/07/92**	**3334B4** **0** **04/07/92**	**3334B4** **1** **04/07/92**	**3334B4** **2** **04/07/92**
Parameters													
FLUORIDE	mg/kg	0.98	0.49	0.350 [0.370]	0.65	0.510 [0.540]	0.5	0.74	0.49	0.46	0.65	0.48	0.36
pH	pH Units	8	7.8	7.90 [8.00]	7.9	8.10 [8.00]	8	8	7.9	7.8	8.1	7.8	7.5

Notes for E.7.Attachments 1-4
Risk Assessment Datasets
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

% =	Percentage
< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyl
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound

Table E.7.Attachment-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92
Metals							
ARSENIC	mg/kg	<53.0	<55.0	<55.0	<54.0	<43.0	<47.0 [<20.0]
BARIUM	mg/kg	<110	<110	<110	<110	<87.0	<93.0 [81.0]
CADMIUM	mg/kg	<2.60	<2.70	<2.70	<2.70	<2.20	<2.30 [<0.980]
Chromium	mg/kg	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	<26.0	<27.0	<27.0	<27.0	<22.0	<23.0 [20.0]
MERCURY	mg/kg	<0.100	<0.100	<0.0900	<0.0800	<0.0900	<0.100 [<0.0600]
SELENIUM	mg/kg	<53.0	<55.0	<55.0	<54.0	<43.0	<47.0 [<20.0]
SILVER	mg/kg	<5.30	<5.50	<5.50	<5.40	<4.30	<4.70 [<2.00]
Parameters							
Percent Moisture	%	NA	NA	NA	NA	NA	NA
PCBs							
Aroclor 1221	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1232	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1242	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1254	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1260	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor-1016	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor-1248	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Pesticides/Herbicide							
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
4,4-DDD	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
4,4-DDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
4,4-DDT	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ALDRIN	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
alpha-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
beta-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
CAMPHECHLOR	mg/kg	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670 [<0.0670]
CHLORDANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
D-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
DIELDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
Endosulfan I	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
Endosulfan II	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
G-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
HEPTACHLOR	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
SVOCs							
1,2,4-TRICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
1,2-BENZPHENANTHRACENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
1,4-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2,4,6-Trichlorophenol	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2,4-DICHLOROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2,4-DIMETHYLPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2,4-DINITROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]
2,4-DINITROTOLUENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2,6-DINITROTOLUENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2-CHLORONAPHTHALENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2-CHLOROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]
2-NITROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660 [<0.660]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
4-Chloro-3-methylphenol	mg/kg	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660 [<0.660]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
4-NITROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]
Acenaphthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
ACENAPHTHYLENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]

Table E.7.Attachment-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92
ANTHRACENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]
Benzo(a)anthracene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Benzo(a)pyrene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Benzo(b)fluoranthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Benzo(g,h,i)perylene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Benzo(k)fluoranthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
BENZOIC ACID	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]
BENZYL BUTYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
bis (2-chloroethoxy) methane	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
bis(2-Chloroethyl) ether	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Dibenz(a,h)anthracene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
DIETHYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
DIMETHYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Di-n-butyl phthalate	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Di-n-octyl phthalate	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
FLUORANTHENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
FLUORENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
HEXACHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
HEXACHLOROETHANE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
M-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
NITROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
n-Nitrosodi-n-propylamine	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
N-NITROSODIPHENYLAMINE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
PENTACHLOROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]
PHENANTHRENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
PHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
PYRENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
VOCs							
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
1,2-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]

Table E.7.Attachment-1
Soil Risk Assessment Dataset
Soil 0-2 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
NAPHTHALENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]

Table E.7.Attachment-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92	SWMU 38-39 SB-01 4 12/01/93	SWMU 38-39 SB-01 8 12/01/93	SWMU 38-39 SB-02 6 12/01/93	SWMU 38-39 SB-02 9 12/01/93	SWMU 38-39 SB-03 4 12/01/93	SWMU 38-39 SB-03 8 12/01/93
Metals													
ARSENIC	mg/kg	<53.0	<55.0	<55.0	<54.0	<43.0	<47.0 [<20.0]	<3.00	<3.03	<3.01	17.3	13.3	13.4
BARIUM	mg/kg	<110	<110	<110	<110	<87.0	<93.0 [81.0]	51.7	56.9	44.6	75.3	56.8	144
CADMIUM	mg/kg	<2.60	<2.70	<2.70	<2.70	<2.20	<2.30 [<0.980]	<6.01	<6.05	<6.02	<6.17	<6.09	<5.97
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	<30.0	<30.3	<30.1	<30.9	<30.4	<29.9
LEAD	mg/kg	<26.0	<27.0	<27.0	<27.0	<22.0	<23.0 [20.0]	3.58	<3.03	<3.01	<3.09	<3.04	3.24
MERCURY	mg/kg	<0.100	<0.100	<0.0900	<0.0800	<0.0900	<0.100 [<0.0600]	<0.0240	<0.0242	<0.0241	<0.0247	<0.0244	<0.0239
SELENIUM	mg/kg	<53.0	<55.0	<55.0	<54.0	<43.0	<47.0 [<20.0]	<3.00	<3.03	<3.01	4.51	5.97	5.15
SILVER	mg/kg	<5.30	<5.50	<5.50	<5.40	<4.30	<4.70 [<2.00]	<30.0	<30.3	<30.1	<30.9	<30.4	<29.9
Parameters													
Percent Moisture	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	<36.0	<36.3	<36.1	<36.9	<36.5	<35.8
PCBs													
Aroclor 1221	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Aroclor 1232	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Aroclor 1242	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Aroclor 1254	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Aroclor 1260	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Aroclor-1016	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Aroclor-1248	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.190	<0.191	<0.190	<0.195	<0.193	<0.189
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.141	<0.142	<0.141	<0.145	<0.143	<0.140
4,4-DDD	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00887	<0.00890	<0.00887	<0.00909	<0.00898	<0.00879
4,4-DDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00322	<0.00324	<0.00322	<0.00330	<0.00326	<0.00320
4,4-DDT	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00968	<0.00972	<0.00968	<0.00992	<0.00980	<0.00960
ALDRIN	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00322	<0.00324	<0.00322	<0.00330	<0.00326	<0.00320
alpha-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00242	<0.00243	<0.00242	<0.00248	<0.00245	<0.00240
beta-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00484	<0.00486	<0.00484	<0.00496	<0.00490	<0.00480
CAMPHECHLOR	mg/kg	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670 [<0.0670]	<0.194	<0.194	<0.194	<0.198	<0.196	<0.192
CHLORDANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.0113	<0.0114	<0.0113	<0.0116	<0.0115	<0.0112
D-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00726	<0.00729	<0.00726	<0.00744	<0.00735	<0.00720
DIELDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00162	<0.00162	<0.00162	<0.00166	<0.00164	<0.00160
Endosulfan I	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.0113	<0.0114	<0.0113	<0.0116	<0.0115	<0.0112
Endosulfan II	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00322	<0.00324	<0.00322	<0.00330	<0.00326	<0.00320
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.0532	<0.0535	<0.0532	<0.0546	<0.0539	<0.0528
ENDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00484	<0.00486	<0.00484	<0.00496	<0.00490	<0.00480
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00322	<0.00324	<0.00322	<0.00330	<0.00326	<0.00320
HEPTACHLOR	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00242	<0.00243	<0.00242	<0.00248	<0.00245	<0.00240
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.0669	<0.0672	<0.0669	<0.0686	<0.0678	<0.0664
SVOCs													
1,2,4-TRICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
1,2-BENZPHENANTHRACENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
1,4-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2,4,6-Trichlorophenol	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2,4-DICHLOROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2,4-DIMETHYLPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2,4-DINITROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
2,4-DINITROTOLUENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2,6-DINITROTOLUENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2-CHLORONAPHTHALENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2-CHLOROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]

Table E.7.Attachment-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92	SWMU 38-39 SB-01 4 12/01/93	SWMU 38-39 SB-01 8 12/01/93	SWMU 38-39 SB-02 6 12/01/93	SWMU 38-39 SB-02 9 12/01/93	SWMU 38-39 SB-03 4 12/01/93	SWMU 38-39 SB-03 8 12/01/93
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
2-NITROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660 [<0.660]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
4-Chloro-3-methylphenol	mg/kg	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660 [<0.660]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0240	<0.0242	<0.0241 [<0.0242]	<0.0247	<0.0244	<0.0239 [<0.0239]
4-NITROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
Acenaphthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
ACENAPHTHYLENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
ANTHRACENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
Benzo(a)anthracene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Benzo(a)pyrene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Benzo(b)fluoranthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Benzo(g,h,i)perylene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Benzo(k)fluoranthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
BENZOIC ACID	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
BENZYL BUTYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
bis (2-chloroethoxy) methane	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
bis(2-Chloroethyl) ether	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Dibenz(a,h)anthracene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
DIETHYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
DIMETHYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Di-n-butyl phthalate	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Di-n-octyl phthalate	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.20	<1.21	<1.20 [<1.21]	<1.23	<1.22	<1.19 [<1.19]
FLUORANTHENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
FLUORENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
HEXACHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
HEXACHLOROETHANE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
M-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
n-Nitrosodi-n-propylamine	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
N-NITROSODIPHENYLAMINE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.397	<0.400	<0.398 [<0.00604]	<0.407	<0.402	<0.394 [<0.00597]
PENTACHLOROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
PHENANTHRENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
PHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.93	<1.94	<1.93 [<1.93]	<1.97	<1.95	<1.91 [<1.91]
PYRENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]

Table E.7.Attachment-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92	SWMU 38-39 SB-01 4 12/01/93	SWMU 38-39 SB-01 8 12/01/93	SWMU 38-39 SB-02 6 12/01/93	SWMU 38-39 SB-02 9 12/01/93	SWMU 38-39 SB-03 4 12/01/93	SWMU 38-39 SB-03 8 12/01/93
VOCs													
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,2-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.0240	<0.0242	<0.0241 [<0.0242]	<0.0247	<0.0244	<0.0239 [<0.0239]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
Acetaldehyde	mg/kg	NA	NA	NA	NA	NA	NA	<0.0185	<0.0186	<0.0185	<0.0190	<0.0188	<0.0184
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.0240	<0.0242	<0.0241 [<0.0242]	<0.0247	0.0342	<0.0239 [<0.0239]
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0120	<0.0121	<0.0120 [<0.00604]	<0.0123	<0.0122	<0.0119 [<0.00597]
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0240	<0.0242	<0.0241 [<0.0242]	<0.0247	<0.0244	<0.0239 [<0.0239]
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
NAPHTHALENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.397	<0.400	<0.398 [<0.399]	<0.407	<0.402	<0.394 [<0.394]
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00601	<0.00605	<0.00602	<0.00617	<0.00609	<0.00597
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0240	<0.0242	<0.0241 [<0.0242]	<0.0247	<0.0244	<0.0239 [<0.0239]
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0120	<0.0121	<0.0120 [<0.0121]	<0.0123	<0.0122	<0.0119 [<0.0119]
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00601	<0.00605	<0.00602 [<0.00604]	<0.00617	<0.00609	<0.00597 [<0.00597]

Table E.7.Attachment-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-04 4 12/01/93	SWMU 38-39 SB-05 4 12/02/93	SWMU 38-39 SB-05 8 12/02/93	SWMU 38-39 SB-06 4 12/02/93	SWMU 38-39 SB-06 9 12/02/93	SWMU 38-39 SB-07 4 12/02/93	SWMU 38-39 SB-07 9 12/02/93	SWMU 38-39 SB-08 3 12/02/93	SWMU 38-39 SB-08 4 12/02/93	SWMU 38-39 SB-08 9 12/02/93
Metals											
ARSENIC	mg/kg	11.6	17.5	12.7	14	9.5	9.29	NA	NA	<2.88	<3.02
BARIUM	mg/kg	64.7	<30.8	56.4	<30.9	42.4	<30.2	NA	NA	75.8	57.1
CADMIUM	mg/kg	<5.99	<6.16	<6.55	<6.17	<6.42	<6.03	NA	NA	<5.77	<6.04
Chromium	mg/kg	<29.9	<30.8	<32.8	<30.9	<32.1	<30.2	NA	NA	<28.8	<30.2
LEAD	mg/kg	4.87	<3.08	<3.28	<3.09	<3.21	<3.02	NA	NA	7.75	<3.02
MERCURY	mg/kg	<0.0240	<0.0246	<0.0262	<0.0247	<0.0257	<0.0241	NA	NA	0.0265	0.0278
SELENIUM	mg/kg	6.8	<3.08	<3.28	11.4	5.39	<3.02	NA	NA	<2.88	<3.02
SILVER	mg/kg	<29.9	<30.8	<32.8	<30.9	<32.1	<30.2	NA	NA	32.9	38.6
Parameters											
Percent Moisture	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	999	<36.8	<39.2	<36.9	<38.5	<36.1	<37.2	NA	98	<36.2
PCBs											
Aroclor 1221	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Aroclor 1232	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Aroclor 1242	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Aroclor 1254	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Aroclor 1260	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Aroclor-1016	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Aroclor-1248	mg/kg	<0.189	<0.195	<0.207	<0.195	<0.203	<0.190	<0.197	<0.191	<0.182	NA
Pesticides/Herbicide											
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.141	<0.145	<0.154	<0.145	<0.151	<0.141	<0.146	<0.142	<0.135	NA
4,4-DDD	mg/kg	<0.00883	<0.00909	<0.00964	<0.00909	<0.00945	<0.00887	<0.00916	<0.00890	<0.00850	NA
4,4-DDE	mg/kg	<0.00321	<0.00330	<0.00350	<0.00330	<0.00344	<0.00322	<0.00333	<0.00324	<0.00309	NA
4,4-DDT	mg/kg	<0.00964	<0.00992	<0.0105	<0.00992	<0.0103	<0.00968	<0.0100	<0.00972	<0.00928	NA
ALDRIN	mg/kg	<0.00321	<0.00330	<0.00350	<0.00330	<0.00344	<0.00322	<0.00333	<0.00324	<0.00309	NA
alpha-BHC	mg/kg	<0.00241	<0.00248	<0.00263	<0.00248	<0.00258	<0.00242	<0.00250	<0.00243	<0.00232	NA
beta-BHC	mg/kg	<0.00482	<0.00496	<0.00526	<0.00496	<0.00516	<0.00484	<0.00500	<0.00486	<0.00464	NA
CAMPHECHLOR	mg/kg	<0.193	<0.198	<0.210	<0.198	<0.206	<0.194	<0.200	<0.194	<0.186	NA
CHLORDANE	mg/kg	<0.0113	<0.0116	<0.0123	<0.0116	<0.0121	<0.0113	<0.0117	<0.0114	<0.0109	NA
D-BHC	mg/kg	<0.00723	<0.00744	<0.00789	<0.00744	<0.00774	<0.00726	<0.00750	<0.00729	<0.00696	NA
DIELDRIN	mg/kg	<0.00161	<0.00166	<0.00176	<0.00166	<0.00172	<0.00162	<0.00167	<0.00162	<0.00155	NA
Endosulfan I	mg/kg	<0.0113	<0.0116	<0.0123	<0.0116	<0.0121	<0.0113	<0.0117	<0.0114	<0.0109	NA
Endosulfan II	mg/kg	<0.00321	<0.00330	<0.00350	<0.00330	<0.00344	<0.00322	<0.00333	<0.00324	<0.00309	NA
ENDOSULFAN SULFATE	mg/kg	<0.0530	<0.0546	<0.0579	<0.0546	<0.0568	<0.0532	<0.0550	<0.0535	<0.0510	NA
ENDRIN	mg/kg	<0.00482	<0.00496	<0.00526	<0.00496	<0.00516	<0.00484	<0.00500	<0.00486	<0.00464	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	<0.00321	<0.00330	<0.00350	<0.00330	<0.00344	<0.00322	<0.00333	<0.00324	<0.00309	NA
HEPTACHLOR	mg/kg	<0.00241	<0.00248	<0.00263	<0.00248	<0.00258	<0.00242	<0.00250	<0.00243	<0.00232	NA
HEPTACHLOR EPOXIDE	mg/kg	<0.0667	<0.0686	<0.0727	<0.0686	<0.0714	<0.0669	<0.0692	<0.0672	<0.0642	NA
SVOCs											
1,2,4-TRICHLOROBENZENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
1,2-BENZPHENANTHRACENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
1,4-DICHLOROBENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1-Chloronaphthalene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2,4,5-TRICHLOROPHENOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2,4,6-Trichlorophenol	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2,4-DICHLOROPHENOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2,4-DIMETHYLPHENOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2,4-DINITROPHENOL	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
2,4-DINITROTOLUENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2,6-DINITROTOLUENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2-CHLORONAPHTHALENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2-CHLOROPHENOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
2-METHYLNAPHTHALENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
2-Methylphenol	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399

Table E.7.Attachment-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-04 4 12/01/93	SWMU 38-39 SB-05 4 12/02/93	SWMU 38-39 SB-05 8 12/02/93	SWMU 38-39 SB-06 4 12/02/93	SWMU 38-39 SB-06 9 12/02/93	SWMU 38-39 SB-07 4 12/02/93	SWMU 38-39 SB-07 9 12/02/93	SWMU 38-39 SB-08 3 12/02/93	SWMU 38-39 SB-08 4 12/02/93	SWMU 38-39 SB-08 9 12/02/93
2-NITROANILINE	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
2-NITROPHENOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
3,3'-DICHLOROBENZIDINE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
3-NITROANILINE	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
4-Chloro-3-methylphenol	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
4-Methyl Phenol	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0240	<0.0246	<0.0262 [<0.0260]	<0.0247	<0.0257	<0.0241	<0.0248	NA	<0.0231	<0.0242
4-NITROPHENOL	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
Acenaphthene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
ACENAPHTHYLENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
ANTHRACENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
BENZIDINE	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
Benzo(a)anthracene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Benzo(a)pyrene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Benzo(b)fluoranthene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Benzo(g,h,i)perylene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Benzo(k)fluoranthene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
BENZOIC ACID	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
BENZYL ALCOHOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
BENZYL BUTYL PHTHALATE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
bis (2-chloroethoxy) methane	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
bis(2-Chloroethyl) ether	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.438	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Dibenz(a,h)anthracene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
DIBENZOFURAN	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
DIETHYL PHTHALATE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
DIMETHYL PHTHALATE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Di-n-butyl phthalate	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Di-n-octyl phthalate	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
DIPHENYLAMINE	mg/kg	<1.19	<1.23	<1.31 [<1.30]	<1.23	<1.28	<1.20	<1.24	NA	<1.15	<1.21
FLUORANTHENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
FLUORENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
HEXACHLOROBENZENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
HEXACHLOROETHANE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
Indeno(1,2,3-cd)pyrene	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
M-DICHLOROBENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
n-Nitrosodi-n-propylamine	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
N-NITROSODIPHENYLAMINE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
P-CHLOROANILINE	mg/kg	<0.395	<0.406	<0.432 [<0.00651]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
PENTACHLOROPHENOL	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
PHENANTHRENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
PHENOL	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
P-NITROANILINE	mg/kg	<1.92	<1.97	<2.10 [<2.08]	<1.97	<2.06	<1.93	<1.99	NA	<1.85	<1.94
PYRENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399

Table E.7.Attachment-2
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-04 4 12/01/93	SWMU 38-39 SB-05 4 12/02/93	SWMU 38-39 SB-05 8 12/02/93	SWMU 38-39 SB-06 4 12/02/93	SWMU 38-39 SB-06 9 12/02/93	SWMU 38-39 SB-07 4 12/02/93	SWMU 38-39 SB-07 9 12/02/93	SWMU 38-39 SB-08 3 12/02/93	SWMU 38-39 SB-08 4 12/02/93	SWMU 38-39 SB-08 9 12/02/93
VOCs											
1,1,1-Trichloroethane	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,1,2-TRICHLOROETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,1-DICHLOROETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,1-DICHLOROETHYLENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,2,3-Trichloropropane	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,2-DICHLOROBENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,2-DICHLOROETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,2-Dichloropropane	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
1,4 Dichloro-2-butene	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
2-butanone	mg/kg	<0.0240	<0.0246	<0.0262 [<0.0260]	<0.0247	<0.0257	<0.0241	<0.0248	NA	<0.0231	<0.0242
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
Acetaldehyde	mg/kg	<0.0185	<0.0190	<0.0201	<0.0190	<0.0198	<0.0185	<0.0192	<0.0186	<0.0178	NA
ACETONE	mg/kg	<0.0240	<0.0246	<0.0262 [<0.0260]	<0.0247	<0.0257	<0.0241	<0.0248	NA	<0.0231	<0.0242
ACROLEIN	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
ACRYLONITRILE	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
BENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
BROMODICHLOROMETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
BROMOMETHANE	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
CARBON DISULFIDE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
CARBON TETRACHLORIDE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
CFC-11	mg/kg	<0.0120	<0.0123	<0.0131 [<0.00651]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
CHLORODIBROMOMETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
CHLOROETHANE	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
CHLOROFORM	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
CHLOROMETHANE	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
cis-1,2-Dichloroethene	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
cis-1,3-Dichloropropene	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
DIBROMOMETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
DICHLOROMETHANE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
ETHYLBENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
Iodomethane	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
METHYL N-BUTYL KETONE	mg/kg	<0.0240	<0.0246	<0.0262 [<0.0260]	<0.0247	<0.0257	<0.0241	<0.0248	NA	<0.0231	<0.0242
METHYLBENZENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
NAPHTHALENE	mg/kg	<0.395	<0.406	<0.432 [<0.430]	<0.407	<0.424	<0.398	<0.410	NA	<0.381	<0.399
STYRENE (MONOMER)	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
TETRACHLOROETHENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
trans-1,2-Dichloroethene	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
trans-1,3-Dichloropropene	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
TRIBOMOMETHANE	mg/kg	<0.00599	<0.00616	<0.00655	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
TRICHLOROETHYLENE	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604
VINYL ACETATE	mg/kg	<0.0240	<0.0246	<0.0262 [<0.0260]	<0.0247	<0.0257	<0.0241	<0.0248	NA	<0.0231	<0.0242
Vinyl Chloride	mg/kg	<0.0120	<0.0123	<0.0131 [<0.0130]	<0.0123	<0.0128	<0.0121	<0.0124	NA	<0.0115	<0.0121
Xylenes	mg/kg	<0.00599	<0.00616	<0.00655 [<0.00651]	<0.00617	<0.00642	<0.00603	<0.00621	NA	<0.00577	<0.00604

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		38SSD1	38SSD2	38SSD3	39SSD1	39SSD2	39SSD3	HMW-29	HMW-29	HMW-31	HMW-31	HMW-33	HMW-33	HMW-34	HMW-34	HMW-35	HMW-35
Sample Depth(ft):		0	0	0	0	0	0	18	38	19	39	19	39	19	39	19	39
Date Collected:	Units	04/04/92	04/04/92	04/04/92	04/04/92	04/04/92	04/04/92	11/03/93	11/03/93	11/03/93	11/04/93	11/04/93	11/05/93	11/08/93	11/08/93	11/15/93	11/15/93
Metals																	
ARSENIC	mg/kg	<53.0	<55.0	<55.0	<54.0	<43.0	<47.0 [<20.0]	4.39	12.6	4.11	12.5	5.97	15	6.26 J	20.8 J	8.11	35.8
BARIUM	mg/kg	<110	<110	<110	<110	<87.0	<93.0 [81.0]	123 J	50.0 J	112 J	99.3 J	89.5 J	87.7 J	102 J	25.0 J	98.6	78.4
CADMIUM	mg/kg	<2.60	<2.70	<2.70	<2.70	<2.20	<2.30 [<0.980]	<1.59 J	<1.20 J	<1.19 J	<1.19	<1.22	<1.20	<1.27	<1.20	<1.19	<1.10
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	<7.94	6.2	6	14.9 J	7.63 J	16.0 J	<5.50	14.0 J	7.12	14.4
LEAD	mg/kg	<26.0	<27.0	<27.0	<27.0	<22.0	<23.0 [20.0]	4.10 J	5.86 J	4.23 J	7.58 J	5.21 J	15.4 J	4.97	8.13 J	3.84	4.36
MERCURY	mg/kg	<0.100	<0.100	<0.0900	<0.0800	<0.0900	<0.100 [<0.0600]	<0.0274	<0.0240	<0.0238 J	<0.0231 J	<0.0245 J	<0.0240 J	<0.0253	<0.241	<0.238	<0.0221
SELENIUM	mg/kg	<53.0	<55.0	<55.0	<54.0	<43.0	<47.0 [<20.0]	<3.43 J	<2.99 J	<2.98 J	<2.89 J	<3.06 J	<3.00 J	10.6 J	6.33 J	<2.97	3.04
SILVER	mg/kg	<5.30	<5.50	<5.50	<5.40	<4.30	<4.70 [<2.00]	21	13	18.9	<5.95 J	<6.10 J	<6.02 J	7.89 J	<6.02 J	9.66	8.07
Parameters																	
Percent Moisture	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	<41.1	<35.8	<35.7	<34.7	<36.7	<36.0	<37.8	<36.0	<35.6	<33.1
PCBs																	
Aroclor 1221	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Aroclor 1232	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Aroclor 1242	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Aroclor 1254	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Aroclor 1260	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Aroclor-1016	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Aroclor-1248	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.217	<0.189	<0.188	<0.183	<0.193 J	<0.190	<0.200	<0.190 J	<0.188	<0.174
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.161	<0.141	<0.140	<0.136	<0.144 J	<0.141	<0.148	<0.141 J	<0.140	<0.130
4,4-DDD	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.0101	<0.00883	<0.00876	<0.00854	<0.00901 J	<0.00887	<0.00931	<0.00887 J	<0.00876	<0.00813
4,4-DDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00368	<0.00321	<0.00318	<0.00310	<0.00328 J	<0.00322	<0.00338	<0.00322 J	<0.00318	<0.00296
4,4-DDT	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.0110	<0.00964	<0.00956	<0.00932	<0.00984 J	<0.00968	<0.0102	<0.00968 J	<0.00956	<0.00888
ALDRIN	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00368	<0.00321	<0.00318	<0.00310	<0.00328 J	<0.00322	<0.00338	<0.00322 J	<0.00318	<0.00296
alpha-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00276	<0.00241	<0.00239	<0.00233	<0.00246 J	<0.00242	<0.00254	<0.00242 J	<0.00239	<0.00222
beta-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00552	<0.00482	<0.00478	<0.00466	<0.00492 J	<0.00484	<0.00508	<0.00484 J	<0.00478	<0.00444
CAMPHECHLOR	mg/kg	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670 [<0.0670]	<0.221	<0.193	<0.191	<0.186	<0.197 J	<0.194	<0.203	<0.194 J	<0.191	<0.178
CHLORDANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]	<0.0129	<0.0113	<0.0112	<0.0109	<0.0115 J	<0.0113	<0.0119	<0.0113 J	<0.0112	<0.0104
D-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00828	<0.00723	<0.00717	<0.00699	<0.00738 J	<0.00726	<0.00762	<0.00726 J	<0.00717	<0.00666
DIELDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00184	<0.00161	<0.00160	<0.00156	<0.00164 J	<0.00162	<0.00170	<0.00162 J	<0.00160	<0.00148
Endosulfan I	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.0129	<0.0113	<0.0112	<0.0109	<0.0115 J	<0.0113	<0.0119	<0.0113 J	<0.0112	<0.0104
Endosulfan II	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00368	<0.00321	<0.00318	<0.00310	<0.00328 J	<0.00322	<0.00338	<0.00322 J	<0.00318	<0.00296
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.0607	<0.0530	<0.0526	<0.0513	<0.0541 J	<0.0532	<0.0559	<0.0532 J	<0.0526	<0.0488
ENDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	<0.00552	<0.00482	<0.00478	<0.00466	<0.00492 J	<0.00484	<0.00508	<0.00484 J	<0.00478	<0.00444
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00368	<0.00321	<0.00318	<0.00310	<0.00328 J	<0.00322	<0.00338	<0.00322 J	<0.00318	<0.00296
HEPTACHLOR	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.00276	<0.00241	<0.00239	<0.00233	<0.00246 J	<0.00242	<0.00254	<0.00242 J	<0.00239	<0.00222
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]	<0.0763	<0.0667	<0.0661	<0.0644	<0.0680 J	<0.0669	<0.0703	<0.0669 J	<0.0661	<0.0614
SVOCs																	
1,2,4-TRICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
1,2-BENZPHENANTHRACENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
1,4-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2,4,6-Trichlorophenol	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2,4-DICHLOROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2,4-DIMETHYLPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2,4-DINITROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
2,4-DINITROTOLUENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2,6-DINITROTOLUENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2-CHLORONAPHTHALENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2-CHLOROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	38SSD1 0 04/04/92	38SSD2 0 04/04/92	38SSD3 0 04/04/92	39SSD1 0 04/04/92	39SSD2 0 04/04/92	39SSD3 0 04/04/92	HMW-29 18 11/03/93	HMW-29 38 11/03/93	HMW-31 19 11/03/93	HMW-31 39 11/04/93	HMW-33 19 11/04/93	HMW-33 39 11/05/93	HMW-34 19 11/08/93	HMW-34 39 11/08/93	HMW-35 19 11/15/93	HMW-35 39 11/15/93
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
2-NITROPHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
3,3'-DICHLOROBENZIDINE	mg/kg	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660 [<0.660]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
4-Chloro-3-methylphenol	mg/kg	<0.660	<0.660	<0.660	<0.660	<0.660	<0.660 [<0.660]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0274 J	<0.0240	<0.0238	<0.0232 J	<0.0245 J	<0.0240	<0.0253	<0.0241	<0.0238	<0.0221
4-NITROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
Acenaphthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
ACENAPHTHYLENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
Benzo(a)anthracene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Benzo(a)pyrene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Benzo(b)fluoranthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Benzo(g,h,i)perylene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Benzo(k)fluoranthene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
BENZOIC ACID	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
BENZYL BUTYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
bis (2-chloroethoxy) methane	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
bis(2-Chloroethyl) ether	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Dibenz(a,h)anthracene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
DIETHYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
DIMETHYL PHTHALATE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Di-n-butyl phthalate	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Di-n-octyl phthalate	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.37	<1.19	<1.19	<1.16	<1.22	<1.20	<1.26	<1.20	<1.19	<1.10
FLUORANTHENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
FLUORENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
HEXACHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
HEXACHLOROETHANE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
Indeno(1,2,3-cd)pyrene	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
M-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
n-Nitrosodi-n-propylamine	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
N-NITROSODIPHENYLAMINE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
PENTACHLOROPHENOL	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
PHENANTHRENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
PHENOL	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<2.20	<1.92	<1.91	<1.85	<1.96	<1.93	<2.02	<1.93	<1.90	<1.77
PYRENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		38SSD1	38SSD2	38SSD3	39SSD1	39SSD2	39SSD3	HMW-29	HMW-29	HMW-31	HMW-31	HMW-33	HMW-33	HMW-34	HMW-34	HMW-35	HMW-35
Sample Depth(ft):		0	0	0	0	0	0	18	38	19	39	19	39	19	39	19	39
Date Collected:	Units	04/04/92	04/04/92	04/04/92	04/04/92	04/04/92	04/04/92	11/03/93	11/03/93	11/03/93	11/04/93	11/04/93	11/05/93	11/08/93	11/08/93	11/15/93	11/15/93
VOCs																	
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,2-DICHLOROBENZENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.0274 J	<0.0240	<0.0238	<0.0232 J	<0.0245 J	<0.0240	<0.0253	<0.0241	<0.0238	<0.0221
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
Acetaldehyde	mg/kg	NA	NA	NA	NA	NA	NA	<0.0211	<0.0185	<0.0183	<0.0178	<0.0188 J	<0.0185	<0.0195	<0.0185 J	<0.0183	<0.0170
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	0.0325 J	<0.0240	<0.0238	0.0202 J	<0.0245 J	0.108	<0.0253	<0.0241	<0.0238	<0.0221
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0274 J	<0.0240	<0.0238	<0.0232 J	<0.0245 J	<0.0240	<0.0253	<0.0241	<0.0238	<0.0221
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
NAPHTHALENE	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.453	<0.395	<0.393	<0.382	<0.404	<0.397	<0.417	<0.397	<0.392	<0.365
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0274 J	<0.0240	<0.0238	<0.0232 J	<0.0245 J	<0.0240	<0.0253	<0.0241	<0.0238	<0.0221
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0137 J	<0.0120	<0.0119	<0.0116 J	<0.0123 J	<0.0120	<0.0126	<0.0120	<0.0119	<0.0110
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00686 J	<0.00599	<0.00595	<0.00579 J	<0.00613 J	<0.00601	<0.00632	<0.00602	<0.00594	<0.00552

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-01 4 12/01/93	SWMU 38-39 SB-01 8 12/01/93	SWMU 38-39 SB-01 14 12/01/93	SWMU 38-39 SB-01 19 12/01/93	SWMU 38-39 SB-02 6 12/01/93	SWMU 38-39 SB-02 9 12/01/93	SWMU 38-39 SB-06 14 12/02/93	SWMU 38-39 SB-06 19 12/02/93	SWMU 38-39 SB-07 4 12/02/93	SWMU 38-39 SB-07 9 12/02/93
Metals											
ARSENIC	mg/kg	<3.00	<3.03	<3.24	<3.19	<3.01	17.3	10	10.2	9.29	NA
BARIUM	mg/kg	51.7	56.9	57.1	148	44.6	75.3	<32.7	104	<30.2	NA
CADMIUM	mg/kg	<6.01	<6.05	<6.48	<6.38	<6.02	<6.17	<6.54	<6.38	<6.03	NA
Chromium	mg/kg	<30.0	<30.3	<32.4	<31.9	<30.1	<30.9	<32.7	<31.9	<30.2	NA
LEAD	mg/kg	3.58	<3.03	<3.24	4.44	<3.01	<3.09	<3.27	3.28	<3.02	NA
MERCURY	mg/kg	<0.0240	<0.0242	<0.0259	<0.0255	<0.0241	<0.0247	<0.0267	<0.0255	<0.0241	NA
SELENIUM	mg/kg	<3.00	<3.03	<3.24	<3.19	<3.01	4.51	<3.27	<3.19	<3.02	NA
SILVER	mg/kg	<30.0	<30.3	<32.4	<31.9	<30.1	<30.9	<32.7	<31.9	<30.2	NA
Parameters											
Percent Moisture	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<36.0	<36.3	<38.8	<38.2	<36.1	<36.9	<39.2	<38.2	<36.1	<37.2
PCBs											
Aroclor 1221	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Aroclor 1232	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Aroclor 1242	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Aroclor 1254	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Aroclor 1260	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Aroclor-1016	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Aroclor-1248	mg/kg	<0.190	<0.191	<0.205	<0.201	<0.190	<0.195	<0.207	<0.202	<0.190	<0.197
Pesticides/Herbicide											
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.141	<0.142	<0.152	<0.150	<0.141	<0.145	<0.154	<0.150	<0.141	<0.146
4,4-DDD	mg/kg	<0.00887	<0.00890	<0.00956	<0.00938	<0.00887	<0.00909	<0.00964	<0.00942	<0.00887	<0.00916
4,4-DDE	mg/kg	<0.00322	<0.00324	<0.00348	<0.00341	<0.00322	<0.00330	<0.00350	<0.00342	<0.00322	<0.00333
4,4-DDT	mg/kg	<0.00968	<0.00972	<0.0104	<0.0102	<0.00968	<0.00992	<0.0105	<0.0103	<0.00968	<0.0100
ALDRIN	mg/kg	<0.00322	<0.00324	<0.00348	<0.00341	<0.00322	<0.00330	<0.00350	<0.00342	<0.00322	<0.00333
alpha-BHC	mg/kg	<0.00242	<0.00243	<0.00261	<0.00256	<0.00242	<0.00248	<0.00263	<0.00257	<0.00242	<0.00250
beta-BHC	mg/kg	<0.00484	<0.00486	<0.00522	<0.00512	<0.00484	<0.00496	<0.00526	<0.00514	<0.00484	<0.00500
CAMPHECHLOR	mg/kg	<0.194	<0.194	<0.209	<0.205	<0.194	<0.198	<0.210	<0.206	<0.194	<0.200
CHLORDANE	mg/kg	<0.0113	<0.0114	<0.0122	<0.0120	<0.0113	<0.0116	<0.0123	<0.0120	<0.0113	<0.0117
D-BHC	mg/kg	<0.00726	<0.00729	<0.00783	<0.00768	<0.00726	<0.00744	<0.00789	<0.00771	<0.00726	<0.00750
DIELDRIN	mg/kg	<0.00162	<0.00162	<0.00174	<0.00171	<0.00162	<0.00166	<0.00176	<0.00172	<0.00162	<0.00167
Endosulfan I	mg/kg	<0.0113	<0.0114	<0.0122	<0.0120	<0.0113	<0.0116	<0.0123	<0.0120	<0.0113	<0.0117
Endosulfan II	mg/kg	<0.00322	<0.00324	<0.00348	<0.00341	<0.00322	<0.00330	<0.00350	<0.00342	<0.00322	<0.00333
ENDOSULFAN SULFATE	mg/kg	<0.0532	<0.0535	<0.0574	<0.0563	<0.0532	<0.0546	<0.0579	<0.0565	<0.0532	<0.0550
ENDRIN	mg/kg	<0.00484	<0.00486	<0.00522	<0.00512	<0.00484	<0.00496	<0.00526	<0.00514	<0.00484	<0.00500
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	<0.00322	<0.00324	<0.00348	<0.00341	<0.00322	<0.00330	<0.00350	<0.00342	<0.00322	<0.00333
HEPTACHLOR	mg/kg	<0.00242	<0.00243	<0.00261	<0.00256	<0.00242	<0.00248	<0.00263	<0.00257	<0.00242	<0.00250
HEPTACHLOR EPOXIDE	mg/kg	<0.0669	<0.0672	<0.0722	<0.0708	<0.0669	<0.0686	<0.0727	<0.0711	<0.0669	<0.0692
SVOCs											
1,2,4-TRICHLOROBENZENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
1,2-BENZPHENANTHRACENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
1,4-DICHLOROBENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1-Chloronaphthalene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2,4,5-TRICHLOROPHENOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2,4,6-Trichlorophenol	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2,4-DICHLOROPHENOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2,4-DIMETHYLPHENOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2,4-DINITROPHENOL	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
2,4-DINITROTOLUENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2,6-DINITROTOLUENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2-CHLORONAPHTHALENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2-CHLOROPHENOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
2-METHYLNAPHTHALENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
2-Methylphenol	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-01 4 12/01/93	SWMU 38-39 SB-01 8 12/01/93	SWMU 38-39 SB-01 14 12/01/93	SWMU 38-39 SB-01 19 12/01/93	SWMU 38-39 SB-02 6 12/01/93	SWMU 38-39 SB-02 9 12/01/93	SWMU 38-39 SB-06 14 12/02/93	SWMU 38-39 SB-06 19 12/02/93	SWMU 38-39 SB-07 4 12/02/93	SWMU 38-39 SB-07 9 12/02/93
2-NITROANILINE	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
2-NITROPHENOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
3,3'-DICHLOROBENZIDINE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
3-NITROANILINE	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
4-Chloro-3-methylphenol	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
4-Methyl Phenol	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0240	<0.0242	<0.0259	<0.0255	<0.0241 [<0.0242]	<0.0247	<0.0262	<0.0255	<0.0241	<0.0248
4-NITROPHENOL	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
Acenaphthene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
ACENAPHTHYLENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
ANTHRACENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
BENZIDINE	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
Benzo(a)anthracene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Benzo(a)pyrene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Benzo(b)fluoranthene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Benzo(g,h,i)perylene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Benzo(k)fluoranthene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
BENZOIC ACID	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
BENZYL ALCOHOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
BENZYL BUTYL PHTHALATE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
bis (2-chloroethoxy) methane	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
bis(2-Chloroethyl) ether	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Dibenz(a,h)anthracene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
DIBENZOFURAN	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
DIETHYL PHTHALATE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
DIMETHYL PHTHALATE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Di-n-butyl phthalate	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Di-n-octyl phthalate	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
DIPHENYLAMINE	mg/kg	<1.20	<1.21	<1.29	<1.27	<1.20 [<1.21]	<1.23	<1.31	<1.27	<1.20	<1.24
FLUORANTHENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
FLUORENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
HEXACHLOROBENZENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
HEXACHLOROETHANE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
Indeno(1,2,3-cd)pyrene	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
M-DICHLOROBENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
n-Nitrosodi-n-propylamine	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
N-NITROSODIPHENYLAMINE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
P-CHLOROANILINE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.00604]	<0.407	<0.432	<0.421	<0.398	<0.410
PENTACHLOROPHENOL	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
PHENANTHRENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
PHENOL	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
P-NITROANILINE	mg/kg	<1.93	<1.94	<2.08	<2.04	<1.93 [<1.93]	<1.97	<2.10	<2.04	<1.93	<1.99
PYRENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-01 4 12/01/93	SWMU 38-39 SB-01 8 12/01/93	SWMU 38-39 SB-01 14 12/01/93	SWMU 38-39 SB-01 19 12/01/93	SWMU 38-39 SB-02 6 12/01/93	SWMU 38-39 SB-02 9 12/01/93	SWMU 38-39 SB-06 14 12/02/93	SWMU 38-39 SB-06 19 12/02/93	SWMU 38-39 SB-07 4 12/02/93	SWMU 38-39 SB-07 9 12/02/93
VOCs											
1,1,1-Trichloroethane	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,1,2-TRICHLOROETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,1-DICHLOROETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,1-DICHLOROETHYLENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,2,3-Trichloropropane	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,2-DICHLOROBENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,2-DICHLOROETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,2-Dichloropropane	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
1,4 Dichloro-2-butene	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
2-butanone	mg/kg	<0.0240	<0.0242	<0.0259	<0.0255	<0.0241 [<0.0242]	<0.0247	<0.0262	<0.0255	<0.0241	<0.0248
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
Acetaldehyde	mg/kg	<0.0185	<0.0186	<0.0200	<0.0196	<0.0185	<0.0190	<0.0201	<0.0197	<0.0185	<0.0192
ACETONE	mg/kg	<0.0240	<0.0242	<0.0259	<0.0255	<0.0241 [<0.0242]	<0.0247	<0.0262	<0.0255	<0.0241	<0.0248
ACROLEIN	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
ACRYLONITRILE	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
BENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
BROMODICHLOROMETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
BROMOMETHANE	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
CARBON DISULFIDE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
CARBON TETRACHLORIDE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
CFC-11	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.00604]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
CHLORODIBROMOMETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
CHLOROETHANE	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
CHLOROFORM	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
CHLOROMETHANE	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
cis-1,2-Dichloroethene	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
cis-1,3-Dichloropropene	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
DIBROMOMETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
DICHLOROMETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
ETHYLBENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
Iodomethane	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
METHYL N-BUTYL KETONE	mg/kg	<0.0240	<0.0242	<0.0259	<0.0255	<0.0241 [<0.0242]	<0.0247	<0.0262	<0.0255	<0.0241	<0.0248
METHYLBENZENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
NAPHTHALENE	mg/kg	<0.397	<0.400	<0.428	<0.421	<0.398 [<0.399]	<0.407	<0.432	<0.421	<0.398	<0.410
STYRENE (MONOMER)	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
TETRACHLOROETHENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
trans-1,2-Dichloroethene	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
trans-1,3-Dichloropropene	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
TRIBOMOMETHANE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
TRICHLOROETHYLENE	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621
VINYL ACETATE	mg/kg	<0.0240	<0.0242	<0.0259	<0.0255	<0.0241 [<0.0242]	<0.0247	<0.0262	<0.0255	<0.0241	<0.0248
Vinyl Chloride	mg/kg	<0.0120	<0.0121	<0.0130	<0.0128	<0.0120 [<0.0121]	<0.0123	<0.0131	<0.0128	<0.0121	<0.0124
Xylenes	mg/kg	<0.00601	<0.00605	<0.00648	<0.00638	<0.00602 [<0.00604]	<0.00617	<0.00654	<0.00638	<0.00603	<0.00621

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-07 14 12/02/93	SWMU 38-39 SB-07 19 12/02/93	SWMU 38-39 SB-08 3 12/02/93	SWMU 38-39 SB-08 4 12/02/93	SWMU 38-39 SB-08 9 12/02/93	SWMU 38-39 SB-08 14 12/02/93	SWMU 38-39 SB-08 19 12/02/93
Metals								
ARSENIC	mg/kg	11.6	7.55	NA	<2.88	<3.02	<3.14	<3.08
BARIUM	mg/kg	65.6	110	NA	75.8	57.1	59.5	134
CADMIUM	mg/kg	<6.28	<6.37	NA	<5.77	<6.04	<6.27	<6.16
Chromium	mg/kg	<31.4	<31.8	NA	<28.8	<30.2	<31.4	<30.8
LEAD	mg/kg	<3.14	3.07	NA	7.75	<3.02	<3.14	<3.08
MERCURY	mg/kg	<0.0251	<0.0255	NA	0.0265	0.0278	0.0288	<0.0247
SELENIUM	mg/kg	<3.14	<3.18	NA	<2.88	<3.02	<3.14	<3.08
SILVER	mg/kg	<31.4	<31.8	NA	32.9	38.6	33.1	47.5
Parameters								
Percent Moisture	%	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<37.6	<38.1	NA	98	<36.2	<37.6	<36.9
PCBs								
Aroclor 1221	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Aroclor 1232	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Aroclor 1242	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Aroclor 1254	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Aroclor 1260	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Aroclor-1016	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Aroclor-1248	mg/kg	<0.198	<0.201	<0.191	<0.182	NA	<0.198	<0.195
Pesticides/Herbicide								
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.147	<0.150	<0.142	<0.135	NA	<0.147	<0.145
4,4-DDD	mg/kg	<0.00923	<0.00938	<0.00890	<0.00850	NA	<0.00923	<0.00909
4,4-DDE	mg/kg	<0.00336	<0.00341	<0.00324	<0.00309	NA	<0.00336	<0.00330
4,4-DDT	mg/kg	<0.0101	<0.0102	<0.00972	<0.00928	NA	<0.0101	<0.00992
ALDRIN	mg/kg	<0.00336	<0.00341	<0.00324	<0.00309	NA	<0.00336	<0.00330
alpha-BHC	mg/kg	<0.00252	<0.00256	<0.00243	<0.00232	NA	<0.00252	<0.00248
beta-BHC	mg/kg	<0.00504	<0.00512	<0.00486	<0.00464	NA	<0.00504	<0.00496
CAMPHECHLOR	mg/kg	<0.202	<0.205	<0.194	<0.186	NA	<0.202	<0.198
CHLORDANE	mg/kg	<0.0118	<0.0120	<0.0114	<0.0109	NA	<0.0118	<0.0116
D-BHC	mg/kg	<0.00756	<0.00768	<0.00729	<0.00696	NA	<0.00756	<0.00744
DIELDRIN	mg/kg	<0.00168	<0.00171	<0.00162	<0.00155	NA	<0.00168	<0.00166
Endosulfan I	mg/kg	<0.0118	<0.0120	<0.0114	<0.0109	NA	<0.0118	<0.0116
Endosulfan II	mg/kg	<0.00336	<0.00341	<0.00324	<0.00309	NA	<0.00336	<0.00330
ENDOSULFAN SULFATE	mg/kg	<0.0554	<0.0563	<0.0535	<0.0510	NA	<0.0554	<0.0546
ENDRIN	mg/kg	<0.00504	<0.00512	<0.00486	<0.00464	NA	<0.00504	<0.00496
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	<0.00336	<0.00341	<0.00324	<0.00309	NA	<0.00336	<0.00330
HEPTACHLOR	mg/kg	<0.00252	<0.00256	<0.00243	<0.00232	NA	<0.00252	<0.00248
HEPTACHLOR EPOXIDE	mg/kg	<0.0697	<0.0708	<0.0672	<0.0642	NA	<0.0697	<0.0686
SVOCs								
1,2,4-TRICHLOROBENZENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
1,2-BENZPHENANTHRACENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
1,4-DICHLOROBENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1-Chloronaphthalene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2,4,5-TRICHLOROPHENOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2,4,6-Trichlorophenol	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2,4-DICHLOROPHENOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2,4-DIMETHYLPHENOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2,4-DINITROPHENOL	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
2,4-DINITROTOLUENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2,6-DINITROTOLUENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2-CHLORONAPHTHALENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2-CHLOROPHENOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
2-METHYLNAPHTHALENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
2-Methylphenol	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-07 14 12/02/93	SWMU 38-39 SB-07 19 12/02/93	SWMU 38-39 SB-08 3 12/02/93	SWMU 38-39 SB-08 4 12/02/93	SWMU 38-39 SB-08 9 12/02/93	SWMU 38-39 SB-08 14 12/02/93	SWMU 38-39 SB-08 19 12/02/93
2-NITROANILINE	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
2-NITROPHENOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
3,3'-DICHLOROBENZIDINE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
3-NITROANILINE	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
4-Chloro-3-methylphenol	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
4-Methyl Phenol	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0251	<0.0255	NA	<0.0231	<0.0242	<0.0251	<0.0246
4-NITROPHENOL	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
Acenaphthene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
ACENAPHTHYLENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
ANTHRACENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
BENZIDINE	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
Benzo(a)anthracene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Benzo(a)pyrene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Benzo(b)fluoranthene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Benzo(g,h,i)perylene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Benzo(k)fluoranthene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
BENZOIC ACID	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
BENZYL ALCOHOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
BENZYL BUTYL PHTHALATE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
bis (2-chloroethoxy) methane	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
bis(2-Chloroethyl) ether	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.465	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Dibenz(a,h)anthracene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
DIBENZOFURAN	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
DIETHYL PHTHALATE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
DIMETHYL PHTHALATE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Di-n-butyl phthalate	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Di-n-octyl phthalate	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
DIPHENYLAMINE	mg/kg	<1.25	<1.27	NA	<1.15	<1.21	<1.25	<1.23
FLUORANTHENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
FLUORENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
HEXACHLOROBENZENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
HEXACHLOROETHANE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
Indeno(1,2,3-cd)pyrene	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
M-DICHLOROBENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
n-Nitrosodi-n-propylamine	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
N-NITROSODIPHENYLAMINE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
P-CHLOROANILINE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
PENTACHLOROPHENOL	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
PHENANTHRENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
PHENOL	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
P-NITROANILINE	mg/kg	<2.01	<2.04	NA	<1.85	<1.94	<2.01	<1.97
PYRENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407

Table E.7.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 38-39 SB-07 14 12/02/93	SWMU 38-39 SB-07 19 12/02/93	SWMU 38-39 SB-08 3 12/02/93	SWMU 38-39 SB-08 4 12/02/93	SWMU 38-39 SB-08 9 12/02/93	SWMU 38-39 SB-08 14 12/02/93	SWMU 38-39 SB-08 19 12/02/93
VOCs								
1,1,1-Trichloroethane	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,1,2-TRICHLOROETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,1-DICHLOROETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,1-DICHLOROETHYLENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,2,3-Trichloropropane	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,2-DICHLOROBENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,2-DICHLOROETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,2-Dichloropropane	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
1,4 Dichloro-2-butene	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
2-butanone	mg/kg	<0.0251	<0.0255	NA	<0.0231	<0.0242	<0.0251	<0.0246
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
Acetaldehyde	mg/kg	<0.0193	<0.0196	<0.0186	<0.0178	NA	<0.0193	<0.0190
ACETONE	mg/kg	0.0681 J	<0.0255	NA	<0.0231	<0.0242	<0.0251	<0.0246
ACROLEIN	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
ACRYLONITRILE	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
BENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
BROMODICHLOROMETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
BROMOMETHANE	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
CARBON DISULFIDE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
CARBON TETRACHLORIDE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
CFC-11	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
CHLORODIBROMOMETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
CHLOROETHANE	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
CHLOROFORM	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
CHLOROMETHANE	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
cis-1,2-Dichloroethene	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
cis-1,3-Dichloropropene	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
DIBROMOMETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
DICHLOROMETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
ETHYLBENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
Iodomethane	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
METHYL N-BUTYL KETONE	mg/kg	<0.0251	<0.0255	NA	<0.0231	<0.0242	<0.0251	<0.0246
METHYLBENZENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
NAPHTHALENE	mg/kg	<0.414	<0.420	NA	<0.381	<0.399	<0.414	<0.407
STYRENE (MONOMER)	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
TETRACHLOROETHENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
trans-1,2-Dichloroethene	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
trans-1,3-Dichloropropene	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
TRIBOMOMETHANE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
TRICHLOROETHYLENE	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616
VINYL ACETATE	mg/kg	<0.0251	<0.0255	NA	<0.0231	<0.0242	<0.0251	<0.0246
Vinyl Chloride	mg/kg	<0.0126	<0.0127	NA	<0.0115	<0.0121	<0.0125	<0.0123
Xylenes	mg/kg	<0.00628	<0.00637	NA	<0.00577	<0.00604	<0.00627	<0.00616

Table E.7.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-31 12/19/06	HMW-33 02/04/04	HMW-33 07/20/04	HMW-33 03/30/05	HMW-33 08/04/05	HMW-33 02/13/06	HMW-33 08/21/06	HMW-33 12/28/06	HMW-33 08/27/07	HMW-33 04/14/08	HMW-33 08/21/08
Explosives												
2,4,6-TRINITROTOLUENE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
3-NITROTOLUENE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
4-NITROTOLUENE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
RDX	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
TETRYL	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
Metals												
ALUMINUM	mg/L	NA	0.832 [0.822]	<0.100 [<0.100]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	NA	NA	NA	NA
ANTIMONY	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500 [<0.0500]	<0.0200	<0.0200
ARSENIC	mg/L	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	0.026
BARIUM	mg/L	0.011	<0.100 [<0.100]	0.0110 [0.0110]	<0.0100 [<0.0100]	<0.0100 [0.0100]	0.0130 [0.0130]	0.0110 [0.0100]	<0.0100	<0.0100 [<0.0100]	0.007	0.008
BERYLLIUM	mg/L	NA	<0.00250 [<0.00250]	<0.00250 [<0.00250]	0.0110 [0.0110]	<0.00250 [<0.00250]	0.00600 [0.00600]	<0.00250 [<0.00250]	NA	<0.00250 [<0.00250]	<0.00200	<0.00200
BORON	mg/L	NA	7.96 [8.05]	7.45 [7.42]	7.28 [7.45]	<0.00500 [6.87]	6.24 [6.32]	7.08 [6.97]	NA	NA	NA	NA
CADMIUM	mg/L	0.003	<0.00500 [<0.00500]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00200 [<0.00200]	<0.00100	<0.00200
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	550 [562]	525 [546]	526	NA	NA	NA
Chromium	mg/L	0.987	1.54 [1.04]	1.15 [1.12]	1.12 [0.984]	<0.0100 [0.987]	0.671 [0.691]	0.812 [0.751]	0.67	0.629 [0.702]	0.58	0.591
COBALT	mg/L	NA	<0.0200 [<0.0200]	<0.00500 [<0.00500]	<0.0200 [<0.0200]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00200	<0.00200
COPPER	mg/L	NA	<0.0125 [0.0650]	0.0410 [0.0240]	0.0810 [0.0660]	<0.00500 [<0.00500]	0.0860 [0.0990]	0.0560 [0.0570]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	NA	1.47 [1.41]	1.41 [1.40]	1.14 [1.06]	1.13 [1.15]	NA	NA	NA	NA	NA	NA
Iron	mg/L	NA	0.432 [0.518]	0.0840 [0.445]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [0.0250]	<0.0100 [<0.0100]	NA	NA	NA	NA
LEAD	mg/L	<0.00500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.0100 [<0.0100]	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	NA	1.18 [1.18]	0.828 [0.813]	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	2,190 [2,050]	2,490 [2,490]	2,290	NA	NA	NA
MANGANESE	mg/L	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	NA	NA	NA
MERCURY	mg/L	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200	<0.000200 [<0.000200]	<0.000200	<0.000200
MOLYBDENUM	mg/L	NA	1.28 [0.920]	1.08 [1.06]	0.972 [1.13]	<0.0500 [1.10]	0.912 [0.925]	0.914 [0.923]	NA	NA	NA	NA
NICKEL	mg/L	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
POTASSIUM	mg/L	NA	NA	NA	NA	NA	262 [268]	144 [150]	206	NA	NA	NA
SELENIUM	mg/L	0.325	<0.0500 [<0.0500]	0.476 [0.501]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	0.625 [0.671]	0.583 [0.585]	0.527	0.488 [0.486]	0.523	0.586
SILVER	mg/L	<0.00200	<0.0125 [<0.0125]	<0.00300 [<0.00300]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200	<0.00500 [<0.00500]	<0.00500	<0.00500
SODIUM	mg/L	NA	NA	NA	NA	NA	5,220 [4,820]	6,680 [6,490]	6,430	NA	NA	NA
STRONTIUM	mg/L	NA	7.52 [7.60]	8.80 [8.91]	17.9 [16.2]	<0.00500 [7.93]	6.97 [6.98]	17.8 [17.3]	NA	NA	NA	NA
THALLIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500 [<0.0500]	<0.0200	<0.0500
TIN	mg/L	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	0.0320 [0.0350]	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	<0.0250	<0.100
Total Cyanide	mg/L	NA	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	NA	NA	<0.0100 [<0.0100]	NA	NA
VANADIUM (FUME OR DUST)	mg/L	NA	0.0400 [0.0410]	0.0310 [0.0320]	0.0540 [0.0500]	<0.00500 [0.0150]	<0.00500 [<0.00500]	0.0250 [0.0250]	NA	0.0260 [0.0270]	0.027	0.028
ZINC	mg/L	<0.00500	<0.0250 [<0.0250]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.0100 [0.00900]	0.0510 [0.0310]	<0.00500	<0.0100 [<0.0100]	<0.00700	0.006
Metals-Dissolved												
Aluminum, Dissolved	mg/L	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	<0.00500	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	NA	NA	NA
Barium, Dissolved	mg/L	<0.0100	<0.100 [<0.100]	0.0120 [0.0120]	<0.0100 [<0.0100]	<0.0100 [0.0100]	0.0120 [0.0120]	<0.0100 [<0.0100]	<0.0100	NA	NA	NA
Beryllium, Dissolved	mg/L	NA	<0.00250 [<0.00250]	<0.00250 [<0.00250]	0.0120 [0.0120]	<0.00250 [<0.00250]	0.00600 [0.00600]	<0.00250 [<0.00250]	NA	NA	NA	NA
Boron, Dissolved	mg/L	NA	7.00 [7.16]	7.53 [7.50]	7.76 [7.88]	<0.0500 [6.68]	6.20 [6.30]	4.90 [5.02]	NA	NA	NA	NA
Cadmium, Dissolved	mg/L	<0.00100	<0.0250 [<0.0250]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	NA	NA	NA
Calcium, Dissolved	mg/L	NA	424 [415]	484 [481]	582 [591]	579 [597]	547 [558]	562 [558]	NA	NA	NA	NA
Chromium, Dissolved	mg/L	1.05	1.08 [1.04]	1.17 [1.19]	1.16 [1.14]	<0.00500 [0.980]	0.645 [0.661]	0.545 [0.552]	0.661	NA	NA	NA
Cobalt, Dissolved	mg/L	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	NA	NA	NA
Copper, Dissolved	mg/L	NA	<0.0125 [<0.0125]	0.0260 [0.0260]	0.0790 [0.0760]	<0.0125 [<0.0125]	0.0860 [0.0930]	0.0310 [0.0330]	NA	NA	NA	NA
Iron, Dissolved	mg/L	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	0.0110 [0.0100]	NA	NA	NA	NA
Lead, Dissolved	mg/L	<0.00500	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	NA	NA	NA
Lithium, Dissolved	mg/L	NA	1.06 [1.04]	2.19 [2.20]	1.00 [2.02]	1.23 [1.24]	1.18 [1.17]	0.250 [0.253]	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	NA	1,710 [1,680]	2,260 [2,220]	2,320 [2,240]	2,400 [2,370]	2,060 [2,100]	2,510 [2,360]	NA	NA	NA	NA
Manganese, Dissolved	mg/L	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	NA	0.891 [0.896]	1.15 [1.13]	1.06 [1.08]	<0.0500 [1.00]	0.906 [0.919]	0.690 [0.704]	NA	NA	NA	NA
Nickel, Dissolved	mg/L	NA	<0.0250 [<0.0250]	0.0100 [<0.00500]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	NA	NA	NA
Potassium, Dissolved	mg/L	NA	227 [226]	282 [279]	242 [267]	263 [276]	252 [258]	255 [257]	NA	NA	NA	NA
Selenium, Dissolved	mg/L	0.329	<0.0500 [<0.0500]	0.559 [0.581]	0.899 [0.872]	<0.0100 [<0.0100]	0.622 [0.631]	0.509 [0.527]	0.524	NA	NA	NA

Table E.7.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-31 12/19/06	HMW-33 02/04/04	HMW-33 07/20/04	HMW-33 03/30/05	HMW-33 08/04/05	HMW-33 02/13/06	HMW-33 08/21/06	HMW-33 12/28/06	HMW-33 08/27/07	HMW-33 04/14/08	HMW-33 08/21/08
Silver, Dissolved	mg/L	<0.00200	<0.0130 [<0.0130]	<0.00300 [<0.00300]	<0.0130 [<0.0130]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200	NA	NA	NA
Sodium, Dissolved	mg/L	NA	4,560 [4,450]	4,350 [4,310]	5,690 [5,560]	6,100 [6,200]	5,200 [5,170]	5,560 [5,360]	NA	NA	NA	NA
Strontium, Dissolved	mg/L	NA	7.41 [7.57]	9.63 [9.62]	17.3 [18.7]	<0.00500 [6.98]	6.95 [6.96]	5.88 [5.96]	NA	NA	NA	NA
Tin, Dissolved	mg/L	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	0.0320 [0.0350]	<0.0250 [<0.0250]	NA	NA	NA	NA
Vanadium, Dissolved	mg/L	NA	0.0400 [0.0380]	0.0320 [0.0340]	0.0570 [0.0610]	<0.00500 [0.00800]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	NA	NA	NA
Zinc, Dissolved	mg/L	<0.00500	<0.0250 [<0.0250]	<0.0100 [<0.0100]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	0.0100 [0.00900]	<0.00500 [<0.00500]	<0.00500	NA	NA	NA
Parameters												
ALKALINITY	mg/L	148	182 [182]	178 [180]	186 [170]	178 [180]	188 [180]	188 [188]	188	182 [174]	188	188
Alkalinity, Bicarbonate	mg/L	148	182 [182]	178 [180]	186 [170]	178 [180]	188 [180]	188 [188]	188	182 [174]	188	188
Alkalinity, Carbonate	mg/L	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00 [<1.00]	<1.00	<1.00
Ammonia	mg/L	NA	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	NA	NA	NA	NA
Bromide	mg/L	1.81	3.72 [3.64]	3.66 [3.90]	3.55 [3.59]	3.92 [4.05]	3.99 [3.91]	10.4 [9.31]	3.61	3.91 [4.04]	NA	NA
Chloride (CL)	mg/L	3100	5,890 [5,980]	5,580 [5,790]	5,140 [5,290]	5,860 [6,020]	5,870 [5,810]	6,550 [6,630]	3,450	5,750 [5,860]	6,660	5,910
CONDUCTIVITY	mS/cm	20	30.1	NA	33.7 [33.7]	31.3 [31.3]	30.3	31.3	32.8	29.6	30.5	33.1
CONDUCTIVITY	umhos/cm	19800	29,300 [29,600]	29,300 [29,400]	29,800 [29,800]	31,500 [31,700]	33,400 [31,000]	28,700 [29,400]	31,400	31,000 [30,200]	32,200	30,700
FLUORIDE	mg/L	2.17	<0.200 [<0.200]	<0.200 [<0.200]	3.55 [4.14]	4.04 [4.04]	3.84 [3.96]	<0.200 [<0.200]	3.05	4.03 [4.05]	2.72	4.01
Hydroxide Alkalinity	mg/L	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00 [<1.00]	<1.00	<1.00
Nitrate	mg/L	95.3	146 [152]	147 [150]	<0.100 [148]	160 [165]	162 [165]	197 [205]	96.3	NA	NA	NA
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	100 [106]	104	225
Nitrite	mg/L	<1.00	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.200 [<0.200]	<1.00	NA	NA	NA
PERCHLORATE	mg/L	NA	NA	NA	NA	NA	<0.0200 [<0.0200]	<0.0200 [<0.0200]	NA	NA	NA	NA
pH	pH Units	7.62	7.50 [7.50]	7.46 [7.47]	7.57 [7.60]	7.47 [7.51]	7.56 [7.57]	7.76 [7.76]	7.53	7.45 [7.47]	7.43	7.5
Phosphorus	mg/L	NA	0.0850 [<0.0500]	<0.0500 [<0.0500]	0.164 [0.170]	<0.0500 [0.265]	<0.0500 [<0.0500]	<0.0500 [<0.0500]	NA	NA	NA	NA
SILICA	mg/L	NA	23.6 [21.6]	17.5 [17.8]	18.9 [16.7]	<0.0500 [14.2]	16.8 [17.3]	19.4 [19.2]	NA	NA	NA	NA
Silica, Dissolved	mg/L	NA	23.4 [18.9]	18.5 [18.5]	19.3 [18.1]	NA	16.6 [16.8]	12.8 [13.1]	NA	NA	NA	NA
Sulfate	mg/L	11400	14,000 [14,000]	12,500 [13,000]	12,400 [12,900]	13,900 [14,000]	13,700 [17,600]	14,600 [14,900]	8,060	12,500 [12,600]	14,100	13,100
Temperature	deg c	16.7	16.5	NA	19.3 [19.3]	27.5 [27.5]	19.1	23	15.5	22.8	21.9	20.1
TKN	mg/L	NA	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [<4.00]	NA	NA	NA	NA
Total Dissolved Solids	mg/L	20000	29,300 [29,400]	29,900 [30,000]	30,700 [29,800]	31,200 [30,400]	32,800 [32,400]	23,100 [21,600]	31,400	32,000 [31,000]	32,000	31,200
TOTAL ORGANIC CARBON	mg/L	NA	5.57 [28.7]	3.40 [4.01]	4.00 [3.58]	4.74 [4.52]	4.00 [3.90]	4.90 [4.90]	NA	5.46 [5.37]	4.37	NA
Pesticides/Herbicide												
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
2,2-DICHLOR0PROPIONIC ACID	mg/L	NA	<0.00100 [<0.00100]	NA	NA	NA	<0.00200 [<0.00200]	<0.00200 [<0.00200]	NA	NA	NA	NA
2,4,5-T	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	NA	NA	NA
2,4-D	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.00400 [<0.00400]	<0.00400 [<0.00400]	NA	NA	NA	NA
2,4-DB	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.00400 [<0.00400]	<0.00400 [<0.00400]	NA	NA	NA	NA
4,4-DDD	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
4,4-DDE	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
4,4-DDT	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
ALDRIN	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
alpha-BHC	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
alpha-Chlordane	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
beta-BHC	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
CAMPHECHLOR	mg/L	NA	<1.00 [<1.00]	<1.00 [<1.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	NA	NA	NA
D-BHC	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
DICAMBA	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.00200 [<0.00200]	<0.00200 [<0.00200]	NA	NA	NA	NA
DICHLORPROP	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.00400 [<0.00400]	<0.00400 [<0.00400]	NA	NA	NA	NA
DIELDRIN	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/L	NA	<0.000200 [<0.000200]	NA	NA	NA	<0.000600 [<0.000600]	<0.000600 [<0.000600]	NA	NA	NA	NA
Endosulfan I	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
Endosulfan II	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
ENDRIN	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
ENDRIN KETONE	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
gamma-Chlordane	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
G-BHC	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
HEPTACHLOR	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/L	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	NA	NA	NA
MCPA	mg/L	NA	<0.0100 [<0.0100]	NA	NA	NA	<0.400 [<0.400]	<0.400 [<0.400]	NA	NA	NA	NA
MCPP	mg/L	NA	<0.0100 [<0.0100]	NA	NA	NA	<0.400 [<0.400]	<0.400 [<0.400]	NA	NA	NA	NA
Technical Chlordane	mg/L	NA	<1.00 [<1.00]	<1.00 [<1.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	NA	NA	NA

Table E.7.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-31 12/19/06	HMW-33 02/04/04	HMW-33 07/20/04	HMW-33 03/30/05	HMW-33 08/04/05	HMW-33 02/13/06	HMW-33 08/21/06	HMW-33 12/28/06	HMW-33 08/27/07	HMW-33 04/14/08	HMW-33 08/21/08
SVOCs												
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00500
1-Chloronaphthalene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	NA	<20.0 [<20.0]	<20.0 [<20.0]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLORONAPHTHALENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Methyl pyridine	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Methylphenol	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Naphthylamine	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-NITROANILINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
2-NITROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	<5.00 [<5.00]	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [0.0000400]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	<5.00 [<5.00]	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
4-NITROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Acenaphthene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
ACETOPHENONE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Aniline	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
ANTHRACENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [0.0000800]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZIDINE	mg/L	NA	<15.0 [<15.0]	<15.0 [<15.0]	<0.0100 [<0.0100]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZOIC ACID	mg/L	NA	<20.0 [<20.0]	<20.0 [<20.0]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	NA	<10.0 [<10.0]	<10.0 [<10.0]	<0.0100 [<0.0100]	<0.0500 [<0.0500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100	<0.0100

Table E.7.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-31 12/19/06	HMW-33 02/04/04	HMW-33 07/20/04	HMW-33 03/30/05	HMW-33 08/04/05	HMW-33 02/13/06	HMW-33 08/21/06	HMW-33 12/28/06	HMW-33 08/27/07	HMW-33 04/14/08	HMW-33 08/21/08
CYMENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
DIBENZOFURAN	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [0.000190]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Diphenylhydrazine	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
FLUORANTHENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [0.000170]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
FLUORENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
m,p-Cresol	mg/L	NA	NA	<5.00 [<5.00]	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00500
METHANAMINE, N-METHYL-N-NITROSO	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
NITROBENZENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.000500 [<0.00500]	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	0.0101 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
P-CHLOROANILINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100	<0.0100
PHENACETIN	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PHENANTHRENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [0.0000900]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PHENOL	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
P-NITROANILINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PROPYZAMIDE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [0.0000400]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PYRENE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
PYRIDINE	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
TPHs												
DRO	mg/L	<5.00	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]	<5.00 [<5.00]	<5.00	<5.00 [<5.00]	<5.00	<5.00
GRO	mg/L	<0.100	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100	<0.100 [<0.100]	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs												
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	0.0048	0.00416 [0.00399]	0.00609 [0.00572]	0.00447 [0.00462]	0.00552 [0.00530]	0.00478 [0.00474]	0.00527 [0.00532]	0.00514	0.00430 [0.00426]	0.00396	0.00492
1,1-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00500
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
1,4-Dioxane	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100

Table E.7.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 38-39
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-31 12/19/06	HMW-33 02/04/04	HMW-33 07/20/04	HMW-33 03/30/05	HMW-33 08/04/05	HMW-33 02/13/06	HMW-33 08/21/06	HMW-33 12/28/06	HMW-33 08/27/07	HMW-33 04/14/08	HMW-33 08/21/08
BENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	NA	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CFC-11	mg/L	0.00117	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROFORM	mg/L	0.00361	0.00162 [0.00154]	0.00210 [0.00211]	0.00174 [0.00174]	0.00175 [0.00151]	0.00150 [0.00153]	0.00148 [0.00159]	0.00163	0.00133 [0.00135]	0.0014	0.00192
CHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.0052	0.00657 [0.00596]	0.00906 [0.00821]	0.00675 [0.00699]	0.00711 [0.00684]	0.00655 [0.00673]	0.00640 [0.00640]	0.00646	0.00621 [0.00604]	0.00549	0.00495
Vinyl Chloride	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100

Notes for E.8.Attachments 1-4
Risk Assessment Datasets
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
mS/cm =	microSiemens per centimeter
umhos/cm =	micromhos per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyls
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound
TPH =	Total Petroleum Hydrocarbons

Table E.8.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	141BG1 2 04/30/92	HMW-43 1 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-07 1 11/29/93
Metals													
ARSENIC	mg/kg	NA	NA	NA	0.54	8.56	3.74	4.86	3.51	<3.10	<2.96	3.57	<3.12
BARIUM	mg/kg	NA	NA	NA	<92.0	73	97.8	108	97.8	94.4	72.2	112	47.4
CADMIUM	mg/kg	NA	NA	NA	<2.30	<1.12	<5.97	<5.94	<3.06	<6.21	<2.96	<6.22	<6.23
Chromium	mg/kg	<5.97	<6.26	<13.5	NA	6.4	<29.8	<29.7	<15.3	<31.0	<14.8	<31.1	<31.2
Hexavalent Chromium	mg/kg	<1.19	<1.25	<1.08	NA	NA	<1.19	<1.19	<1.22	<1.24 J	<1.18	<1.24	<1.25
LEAD	mg/kg	NA	NA	NA	<23.0	<2.80	8.17	6.84	6	4.3	6.12	6.3	3.65
MERCURY	mg/kg	NA	NA	NA	<0.100	0.0258	<0.0239	<0.0238	<0.0244	<0.0248	<0.0237	<0.0249	0.0474
SELENIUM	mg/kg	NA	NA	NA	<0.500	<2.80	<2.98	<2.97	<3.06	<3.10	<2.96	<3.11	<3.12
SILVER	mg/kg	NA	NA	NA	<4.60	10.8	<29.8	<29.7	<15.3	48.4	<14.8	54.7	<31.2
Parameters													
TPH	mg/kg	NA	NA	NA	<10.0	<33.6	<35.8	<35.6	<36.6	<37.2	<35.4	<37.2	<37.3
PCBs													
Aroclor 1221	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	<0.0670	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	<0.00670	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	<0.00340	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	<2.00	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2-CHLOROPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	<2.00	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2-Methylphenol	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
2-NITROANILINE	mg/kg	NA	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
2-NITROPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411

Table E.8.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	141BG1 2 04/30/92	HMW-43 1 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-07 1 11/29/93
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	<0.700	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
3-NITROANILINE	mg/kg	NA	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	<0.700	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	<0.0500	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249
4-NITROPHENOL	mg/kg	NA	NA	NA	<2.00	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
Acenaphthene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
ACENAPHTHYLENE	mg/kg	NA	NA	NA	<0.300	NA	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
ANTHRACENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
BENZIDINE	mg/kg	NA	NA	NA	<1.70	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
Benzo(a)anthracene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Benzo(a)pyrene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
BENZOIC ACID	mg/kg	NA	NA	NA	<2.00	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Di-n-butyl phthalate	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Di-n-octyl phthalate	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	<1.12	<1.19	<1.19	<1.22	<1.24	<1.18	<1.24 [<1.15]	<1.24
FLUORANTHENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
FLUORENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
HEXACHLOROETHANE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	<0.330	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.00577]	<0.411
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	<2.00	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
PHENANTHRENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
PHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
P-NITROANILINE	mg/kg	NA	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99
PYRENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
TPHs													
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
VOCs													
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00672 J [<0.00577]	<0.00623
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	<0.0200	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623

Table E.8.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	141BG1 2 04/30/92	HMW-43 1 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-07 1 11/29/93
1,2-Dichloropropane	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	<0.0200	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
2-butanone	mg/kg	NA	NA	NA	<0.100	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
ACETONE	mg/kg	NA	NA	NA	<0.100	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249
ACROLEIN	mg/kg	NA	NA	NA	<0.200	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
ACRYLONITRILE	mg/kg	NA	NA	NA	<0.100	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
BENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
BROMOMETHANE	mg/kg	NA	NA	NA	<0.00500	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
CARBON DISULFIDE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
CFC-11	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.00577]	<0.0125
CFC-12	mg/kg	NA	NA	NA	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
CHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
CHLOROFORM	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
CHLOROMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
DIBROMOMETHANE	mg/kg	NA	NA	NA	<0.0200	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
DICHLOROMETHANE	mg/kg	NA	NA	NA	<0.00500	NA	<0.00597	<0.00594	<0.00611	<0.00621	<0.00592	0.00846 B [0.00830 B]	<0.00623
ETHANOL	mg/kg	NA	NA	NA	<1.00	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	<0.0200	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
ETHYLBENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
Iodomethane	mg/kg	NA	NA	NA	<0.0200	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	<0.0500	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249
METHYLBENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
NAPHTHALENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411
STYRENE (MONOMER)	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
TETRACHLOROETHENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846	<0.00623
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623
VINYL ACETATE	mg/kg	NA	NA	NA	<0.0100	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249
Vinyl Chloride	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125
Xylenes	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623

Table E.8.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-09 1 11/29/93
Metals			
ARSENIC	mg/kg	<2.96	2.92
BARIUM	mg/kg	85.4	73.5
CADMIUM	mg/kg	<5.93	<5.83
Chromium	mg/kg	<29.6	<29.2
Hexavalent Chromium	mg/kg	<1.19	<1.17
LEAD	mg/kg	5.22	3.87
MERCURY	mg/kg	<0.0237	<0.0233
SELENIUM	mg/kg	<2.96	<2.92
SILVER	mg/kg	72.4	<29.2
Parameters			
TPH	mg/kg	<35.5	<34.9
PCBs			
Aroclor 1221	mg/kg	NA	NA
Aroclor 1232	mg/kg	NA	NA
Aroclor 1242	mg/kg	NA	NA
Aroclor 1254	mg/kg	NA	NA
Aroclor 1260	mg/kg	NA	NA
Aroclor-1016	mg/kg	NA	NA
Aroclor-1248	mg/kg	NA	NA
Pesticides/Herbicide			
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA
4,4-DDD	mg/kg	NA	NA
4,4-DDE	mg/kg	NA	NA
4,4-DDT	mg/kg	NA	NA
ALDRIN	mg/kg	NA	NA
alpha-BHC	mg/kg	NA	NA
beta-BHC	mg/kg	NA	NA
CAMPHECHLOR	mg/kg	NA	NA
CHLORDANE	mg/kg	NA	NA
D-BHC	mg/kg	NA	NA
DIELDRIN	mg/kg	NA	NA
Endosulfan I	mg/kg	NA	NA
Endosulfan II	mg/kg	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA
ENDRIN	mg/kg	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA
G-BHC	mg/kg	NA	NA
HEPTACHLOR	mg/kg	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA
SVOCs			
1,2,4-TRICHLOROBENZENE	mg/kg	<0.391	<0.385
1,2-BENZPHENANTHRACENE	mg/kg	<0.391	<0.385
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.90	<1.87
1,4-DICHLOROBENZENE	mg/kg	<0.00593	<0.00583
1-Chloronaphthalene	mg/kg	<0.391	<0.385
2,4,5-TRICHLOROPHENOL	mg/kg	<0.391	<0.385
2,4,6-Trichlorophenol	mg/kg	<0.391	<0.385
2,4-DICHLOROPHENOL	mg/kg	<0.391	<0.385
2,4-DIMETHYLPHENOL	mg/kg	<0.391	<0.385
2,4-DINITROPHENOL	mg/kg	<1.90	<1.87
2,4-DINITROTOLUENE	mg/kg	<0.391	<0.385
2,6-DINITROTOLUENE	mg/kg	<0.391	<0.385
2-CHLORONAPHTHALENE	mg/kg	<0.391	<0.385
2-CHLOROPHENOL	mg/kg	<0.391	<0.385
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.90	<1.87
2-METHYLNAPHTHALENE	mg/kg	<0.391	<0.385
2-Methylphenol	mg/kg	<0.391	<0.385
2-NITROANILINE	mg/kg	<1.90	<1.87
2-NITROPHENOL	mg/kg	<0.391	<0.385

Table E.8.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-09 1 11/29/93
3,3'-DICHLOROBENZIDINE	mg/kg	<0.391	<0.385
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.391	<0.385
3-NITROANILINE	mg/kg	<1.90	<1.87
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.391	<0.385
4-Chloro-3-methylphenol	mg/kg	<0.391	<0.385
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.391	<0.385
4-Methyl Phenol	mg/kg	<0.391	<0.385
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0237	<0.0233
4-NITROPHENOL	mg/kg	<1.90	<1.87
Acenaphthene	mg/kg	<0.391	<0.385
ACENAPHTHYLENE	mg/kg	<0.391	<0.385
ANTHRACENE	mg/kg	<0.391	<0.385
BENZIDINE	mg/kg	<1.90	<1.87
Benzo(a)anthracene	mg/kg	<0.391	<0.385
Benzo(a)pyrene	mg/kg	<0.391	<0.385
Benzo(b)fluoranthene	mg/kg	<0.391	<0.385
Benzo(g,h,i)perylene	mg/kg	<0.391	<0.385
Benzo(k)fluoranthene	mg/kg	<0.391	<0.385
BENZOIC ACID	mg/kg	<1.90	<1.87
BENZYL ALCOHOL	mg/kg	<0.391	<0.385
BENZYL BUTYL PHTHALATE	mg/kg	<0.391	<0.385
bis (2-chloroethoxy) methane	mg/kg	<0.391	<0.385
bis(2-Chloroethyl) ether	mg/kg	<0.391	<0.385
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.391	<0.385
Dibenz(a,h)anthracene	mg/kg	<0.391	<0.385
DIBENZOFURAN	mg/kg	<0.391	<0.385
DIETHYL PHTHALATE	mg/kg	<0.391	<0.385
DIMETHYL PHTHALATE	mg/kg	<0.391	<0.385
Di-n-butyl phthalate	mg/kg	<0.391	<0.385
Di-n-octyl phthalate	mg/kg	<0.391	<0.385
DIPHENYLAMINE	mg/kg	<1.18	<1.16
FLUORANTHENE	mg/kg	<0.391	<0.385
FLUORENE	mg/kg	<0.391	<0.385
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.391	<0.385
HEXACHLOROBENZENE	mg/kg	<0.391	<0.385
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.391	<0.385
HEXACHLOROETHANE	mg/kg	<0.391	<0.385
Indeno(1,2,3-cd)pyrene	mg/kg	<0.391	<0.385
M-DICHLOROBENZENE	mg/kg	<0.00593	<0.00583
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA
NITROBENZENE	mg/kg	<0.391	<0.385
n-Nitrosodi-n-propylamine	mg/kg	<0.391	<0.385
N-NITROSODIPHENYLAMINE	mg/kg	<0.391	<0.385
P-CHLOROANILINE	mg/kg	<0.391	<0.385
PENTACHLOROPHENOL	mg/kg	<1.90	<1.87
PHENANTHRENE	mg/kg	<0.391	<0.385
PHENOL	mg/kg	<0.391	<0.385
P-NITROANILINE	mg/kg	<1.90	<1.87
PYRENE	mg/kg	<0.391	<0.385
TPHs			
PETROLEUM HYDROCARBONS	mg/kg	NA	NA
VOCs			
1,1,1-Trichloroethane	mg/kg	<0.00593	<0.00583
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00593	<0.00583
1,1,2-TRICHLOROETHANE	mg/kg	<0.00593	<0.00583
1,1-DICHLOROETHANE	mg/kg	<0.00593	<0.00583
1,1-DICHLOROETHYLENE	mg/kg	<0.00593	<0.00583
1,2,3-Trichloropropane	mg/kg	<0.00593	<0.00583
1,2-DICHLOROBENZENE	mg/kg	<0.00593	<0.00583
1,2-DICHLOROETHANE	mg/kg	<0.00593	<0.00583

Table E.8.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-09 1 11/29/93
1,2-Dichloropropane	mg/kg	<0.00593	<0.00583
1,4 Dichloro-2-butene	mg/kg	<0.0119	<0.0117
2-butanone	mg/kg	<0.0237	<0.0233
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0119	<0.0117
ACETONE	mg/kg	<0.0237	<0.0233
ACROLEIN	mg/kg	<0.00593	<0.00583
ACRYLONITRILE	mg/kg	<0.0119	<0.0117
BENZENE	mg/kg	<0.00593	<0.00583
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.391	<0.385
BROMODICHLOROMETHANE	mg/kg	<0.00593	<0.00583
BROMOMETHANE	mg/kg	<0.0119	<0.0117
CARBON DISULFIDE	mg/kg	<0.00593	<0.00583
CARBON TETRACHLORIDE	mg/kg	<0.00593	<0.00583
CFC-11	mg/kg	<0.0119	<0.0117
CFC-12	mg/kg	NA	NA
CHLOROBENZENE	mg/kg	<0.00593	<0.00583
CHLORODIBROMOMETHANE	mg/kg	<0.00593	<0.00583
CHLOROETHANE	mg/kg	<0.0119	<0.0117
CHLOROFORM	mg/kg	<0.00593	<0.00583
CHLOROMETHANE	mg/kg	<0.0119	<0.0117
cis-1,2-Dichloroethene	mg/kg	<0.00593	<0.00583
cis-1,3-Dichloropropene	mg/kg	<0.00593	<0.00583
DIBROMOMETHANE	mg/kg	<0.00593	<0.00583
DICHLOROMETHANE	mg/kg	<0.00593	<0.00583
ETHANOL	mg/kg	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00593	<0.00583
ETHYLBENZENE	mg/kg	<0.00593	<0.00583
Iodomethane	mg/kg	<0.0119	<0.0117
METHYL N-BUTYL KETONE	mg/kg	<0.0237	<0.0233
METHYLBENZENE	mg/kg	<0.00593	<0.00583
NAPHTHALENE	mg/kg	<0.391	<0.385
STYRENE (MONOMER)	mg/kg	<0.00593	<0.00583
TETRACHLOROETHENE	mg/kg	<0.00593	<0.00583
trans-1,2-Dichloroethene	mg/kg	<0.00593	<0.00583
trans-1,3-Dichloropropene	mg/kg	<0.00593	<0.00583
TRIBOMOMETHANE	mg/kg	<0.00593	<0.00583
TRICHLOROETHYLENE	mg/kg	<0.00593	<0.00583
VINYL ACETATE	mg/kg	<0.0237	<0.0233
Vinyl Chloride	mg/kg	<0.0119	<0.0117
Xylenes	mg/kg	<0.00593	<0.00583

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB04 4 11/30/93	0143SB04 9 11/30/93	0143SB05 1 11/30/93	0143SB05 4 11/30/93	0143SB05 9 11/30/93	0143SB06 1 11/30/93	0143SB06 4 11/30/93	0143SB06 9 11/30/93	141B1 3 04/30/92	141B2 3 04/30/92	141B3 3 04/30/92	141B4 3 04/30/92	141B5 3 04/30/92	141B6 3 05/01/92	141B7 3 05/01/92
Metals																	
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1	<0.490	0.65	1.7	<0.490	<0.490	1.7
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100	<110	<99.0	120	<97.0	<110	96
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.50	<2.70	<2.50	<2.70	<2.40	<2.60	<1.10
Chromium	mg/kg	<5.97	<6.44	<6.51	<6.26	<16.1	<16.3	<13.5	<15.3	<6.56	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.19	<1.29	<1.30	<1.25	<1.29	<1.30	<1.08	<1.22	<1.31	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25.0	<27.0	<25.0	<27.0	<24.0	<26.0	<11.0
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.0700	<0.100	<0.0900	<0.100	<0.0900	<0.100
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.450	<0.490	<0.450	<0.480	<0.490	<0.490	<0.560
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	<5.40	<5.00	<5.40	<4.90	<5.30	<2.10
Parameters																	
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
PCBs																	
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
SVOCs																	
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B1	141B2	141B3	141B4	141B5	141B6	141B7
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	3	3	3	3	3	3
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	04/30/92	04/30/92	04/30/92	04/30/92	04/30/92	05/01/92	05/01/92
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
TPHs																	
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
VOCs																	
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.72
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB04 4 11/30/93	0143SB04 9 11/30/93	0143SB05 1 11/30/93	0143SB05 4 11/30/93	0143SB05 9 11/30/93	0143SB06 1 11/30/93	0143SB06 4 11/30/93	0143SB06 9 11/30/93	141B1 3 04/30/92	141B2 3 04/30/92	141B3 3 04/30/92	141B4 3 04/30/92	141B5 3 04/30/92	141B6 3 05/01/92	141B7 3 05/01/92
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		141B8	141B9	141B10	141B11	141B12	141B13	141B14	141BG1	HMW-11	HMW-43	HMW-43	HMW-43	SWMU 148 SB-01	SWMU 148 SB-01	SWMU 148 SB-01
Sample Depth(ft):		3	3	5	5	3	4	7	2	10	1	3	9	1	4	8
Date Collected:	Units	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	04/30/92	04/17/92	11/17/93	11/17/93	11/17/93	11/29/93	11/29/93	11/29/93
Metals																
ARSENIC	mg/kg	1.7	1.9	<0.560	<0.420	1.8	0.75	0.96	0.54	0.59	8.56	9.64	5.48	3.74	3.19	<3.33
BARIUM	mg/kg	92	140	<100	<93.0	<88.0	<110	<93.0	<92.0	<93.0	73	179	72	97.8	37	70.6
CADMIUM	mg/kg	<0.950	<1.10	<2.60	<2.30	<2.20	<2.70	<2.30	<2.30	<2.30	<1.12	<1.14	<1.28	<5.97	<6.38	<6.66
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4	19.3	<1.28	<29.8	<31.9	<33.3
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<6.41	<1.19	<1.28	<1.33
LEAD	mg/kg	<9.50	<11.0	<26.0	<23.0	<22.0	<27.0	<23.0	<23.0	<23.0	<2.80	14.7	<1.28	8.17	<3.19	<3.33
MERCURY	mg/kg	<0.100	<0.0900	<0.100	<0.100	<0.0700	<0.100	<0.100	<0.100	<0.100	0.0258	<0.0227	0.0386	<0.0239	<0.0255	<0.0266
SELENIUM	mg/kg	<0.560	<0.600	<0.560	<0.420	<0.00500	<0.550	<0.490	<0.500	<0.440	<2.80	<2.83	<3.21	<2.98	<3.19	<3.33
SILVER	mg/kg	<1.90	<2.10	<5.20	<4.60	<4.40	<5.30	<4.60	<4.60	<4.60	10.8	8.84	16.7	<29.8	<31.9	74.6
Parameters																
TPH	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<13.0	<33.6	<33.9	<38.5	<35.8	<38.2	<39.8
PCBs																
Aroclor 1221	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide																
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA	NA	NA	NA
SVOCs																
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	141B8 3 05/01/92	141B9 3 05/01/92	141B10 5 05/01/92	141B11 5 05/01/92	141B12 3 05/01/92	141B13 4 05/01/92	141B14 7 05/01/92	141BG1 2 04/30/92	HMW-11 10 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	<0.394	<0.421 [<0.410]	<0.439
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.4	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.12	<1.13	<1.28	<1.19	<1.27 [<1.24]	<1.33
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.00621]	<0.439
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
TPHs																
PETROLEUM HYDROCARBONS	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<13.0	NA	NA	NA	NA	NA	NA
VOCs																
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
ACETONE	mg/kg	0.19	0.42	<0.100	<0.100	0.19	0.17	<0.100	<0.100	<0.100	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	141B8 3 05/01/92	141B9 3 05/01/92	141B10 5 05/01/92	141B11 5 05/01/92	141B12 3 05/01/92	141B13 4 05/01/92	141B14 7 05/01/92	141BG1 2 04/30/92	HMW-11 10 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.00621]	<0.0133
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.00597	<0.00638 [<0.00621]	<0.00666
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638	<0.00666
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93	SWMU 148 SB-04 9 11/29/93
Metals										
ARSENIC	mg/kg	4.86	<3.20	<3.35	3.51	3.42	<3.34	<3.10	NA	<3.46
BARIUM	mg/kg	108	74.3	89.7	97.8	102	77.4	94.4	NA	111
CADMIUM	mg/kg	<5.94	<6.40	<6.69	<3.06	<6.08	<6.68	<6.21	NA	<3.46
Chromium	mg/kg	<29.7	<32.0	<33.5	<15.3	<30.4	<33.4	<31.0	NA	<17.3
Hexavalent Chromium	mg/kg	<1.19	<1.28	<1.34	<1.22	<1.22	<1.34	<1.24 J	NA	<1.38
LEAD	mg/kg	6.84	<3.20	<3.35	6	<3.04	<3.34	4.3	NA	<3.46
MERCURY	mg/kg	<0.0238	<0.0256	<0.0268	<0.0244	<0.0243	<0.0267	<0.0248	NA	<0.0277
SELENIUM	mg/kg	<2.97	<3.20	<3.35	<3.06	<3.04	<3.34	<3.10	NA	<3.46
SILVER	mg/kg	<29.7	38.4	40.2	<15.3	35.3	74.8	48.4	NA	<17.3
Parameters										
TPH	mg/kg	<35.6	<38.3	<40.1	<36.6	<36.4	<39.9	<37.2	<37.8	<41.5
PCBs										
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide										
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
1,2,4-TRICHLOROBENZENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
1,2-BENZPHENANTHRACENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
1,4-DICHLOROBENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1-Chloronaphthalene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2,4,5-TRICHLOROPHENOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2,4,6-Trichlorophenol	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2,4-DICHLOROPHENOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2,4-DIMETHYLPHENOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2,4-DINITROPHENOL	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
2,4-DINITROTOLUENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2,6-DINITROTOLUENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2-CHLORONAPHTHALENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2-CHLOROPHENOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
2-METHYLNAPHTHALENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2-Methylphenol	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
2-NITROANILINE	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
2-NITROPHENOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
3,3'-DICHLOROBENZIDINE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
3-NITROANILINE	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
4-Chloro-3-methylphenol	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93	SWMU 148 SB-04 9 11/29/93
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
4-Methyl Phenol	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252	<0.0277
4-NITROPHENOL	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
Acenaphthene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
ACENAPHTHYLENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
ANTHRACENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
BENZIDINE	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
Benzo(a)anthracene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Benzo(a)pyrene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Benzo(b)fluoranthene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Benzo(g,h,i)perylene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Benzo(k)fluoranthene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
BENZOIC ACID	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
BENZYL ALCOHOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
BENZYL BUTYL PHTHALATE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
bis (2-chloroethoxy) methane	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
bis(2-Chloroethyl) ether	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Dibenz(a,h)anthracene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
DIBENZOFURAN	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
DIETHYL PHTHALATE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
DIMETHYL PHTHALATE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Di-n-butyl phthalate	mg/kg	<0.392	<0.422	0.592	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Di-n-octyl phthalate	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
DIPHENYLAMINE	mg/kg	<1.19	<1.28	<1.34	<1.22	<1.21 [<1.29]	<1.33	<1.24	<1.26	<1.38
FLUORANTHENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
FLUORENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
HEXACHLOROBENZENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
HEXACHLOROETHANE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
Indeno(1,2,3-cd)pyrene	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
M-DICHLOROBENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
n-Nitrosodi-n-propylamine	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
N-NITROSODIPHENYLAMINE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
P-CHLOROANILINE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.00646]	<0.440	<0.410	<0.416	<0.457
PENTACHLOROPHENOL	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
PHENANTHRENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
PHENOL	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
P-NITROANILINE	mg/kg	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02	<2.22
PYRENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
TPHs										
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1-Trichloroethane	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,1,2-TRICHLOROETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,1-DICHLOROETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,1-DICHLOROETHYLENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,2,3-Trichloropropane	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,2-DICHLOROBENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,2-DICHLOROETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,2-Dichloropropane	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
1,4 Dichloro-2-butene	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
2-butanone	mg/kg	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252	<0.0277
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
ACETONE	mg/kg	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252	<0.0277
ACROLEIN	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
ACRYLONITRILE	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
BENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
BROMODICHLOROMETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
BROMOMETHANE	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93	SWMU 148 SB-04 9 11/29/93
CARBON DISULFIDE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
CARBON TETRACHLORIDE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
CFC-11	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.00646]	<0.0134	<0.0124	<0.0126	<0.0138
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
CHLORODIBROMOMETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
CHLOROETHANE	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
CHLOROFORM	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
CHLOROMETHANE	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
cis-1,2-Dichloroethene	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
cis-1,3-Dichloropropene	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
DIBROMOMETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
DICHLOROMETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00608 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
ETHYLBENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
Iodomethane	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
METHYL N-BUTYL KETONE	mg/kg	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252	<0.0277
METHYLBENZENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
NAPHTHALENE	mg/kg	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416	<0.457
STYRENE (MONOMER)	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
TETRACHLOROETHENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
trans-1,2-Dichloroethene	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
trans-1,3-Dichloropropene	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
TRIBOMOMETHANE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611	<0.00668	<0.00621	<0.00630	<0.00692
TRICHLOROETHYLENE	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692
VINYL ACETATE	mg/kg	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252	<0.0277
Vinyl Chloride	mg/kg	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126	<0.0138
Xylenes	mg/kg	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630	<0.00692

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
Metals										
ARSENIC	mg/kg	<2.96	<3.20	<3.41	3.57	3.38	<3.43	<3.12	3.46	<3.47
BARIUM	mg/kg	72.2	55.1	95.5	112	97.2	92	47.4	70.5	94.3
CADMIUM	mg/kg	<2.96	<12.8	<6.82	<6.22	<5.92	<6.87	<6.23	<6.08	<6.93
Chromium	mg/kg	<14.8	<32.1	<34.1	<31.1	<29.6	<34.3	<31.2	<30.4	<34.7
Hexavalent Chromium	mg/kg	<1.18	<1.28	<1.36	<1.24	<1.18	<1.37	<1.25	<1.22 J	<1.39
LEAD	mg/kg	6.12	3.92	<3.41	6.3	5.44	4.48	3.65	6.63	4.2
MERCURY	mg/kg	<0.0237	<0.0256	<0.0273	<0.0249	<0.0237	<0.0275	0.0474	<0.0243	<0.0277
SELENIUM	mg/kg	<2.96	<3.20	<3.41	<3.11	<2.96	<3.43	<3.12	<3.04	<3.47
SILVER	mg/kg	<14.8	<32.1	46.4	54.7	<29.6 J	<34.3	<31.2	<30.4	<34.7
Parameters										
TPH	mg/kg	<35.4	<38.4	<40.8	<37.2	<35.5	<41.1	<37.3	<36.4	<41.6
PCBs										
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide										
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
1,2,4-TRICHLOROBENZENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
1,2-BENZPHENANTHRACENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
1,4-DICHLOROBENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1-Chloronaphthalene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4,5-TRICHLOROPHENOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4,6-Trichlorophenol	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4-DICHLOROPHENOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4-DIMETHYLPHENOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4-DINITROPHENOL	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
2,4-DINITROTOLUENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,6-DINITROTOLUENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-CHLORONAPHTHALENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-CHLOROPHENOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
2-METHYLNAPHTHALENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-Methylphenol	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-NITROANILINE	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
2-NITROPHENOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
3,3'-DICHLOROBENZIDINE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
3-NITROANILINE	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-Chloro-3-methylphenol	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458

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Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-Methyl Phenol	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
4-NITROPHENOL	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
Acenaphthene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
ACENAPHTHYLENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
ANTHRACENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BENZIDINE	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
Benzo(a)anthracene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(a)pyrene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(b)fluoranthene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(g,h,i)perylene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(k)fluoranthene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BENZOIC ACID	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
BENZYL ALCOHOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BENZYL BUTYL PHTHALATE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
bis (2-chloroethoxy) methane	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
bis(2-Chloroethyl) ether	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Dibenz(a,h)anthracene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIBENZOFURAN	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIETHYL PHTHALATE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIMETHYL PHTHALATE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Di-n-butyl phthalate	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Di-n-octyl phthalate	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIPHENYLAMINE	mg/kg	<1.18	<1.28	<1.36	<1.24 [<1.15]	<1.18	<1.37	<1.24	<1.21	<1.39
FLUORANTHENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
FLUORENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLOROBENZENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLOROETHANE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Indeno(1,2,3-cd)pyrene	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
M-DICHLOROBENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
n-Nitrosodi-n-propylamine	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
N-NITROSODIPHENYLAMINE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
P-CHLOROANILINE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.00577]	<0.391	<0.453	<0.411	<0.401	<0.458
PENTACHLOROPHENOL	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
PHENANTHRENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
PHENOL	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
P-NITROANILINE	mg/kg	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
PYRENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
TPHs										
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1-Trichloroethane	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1,2-TRICHLOROETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHYLENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00672 J [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2,3-Trichloropropane	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2-DICHLOROBENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2-DICHLOROETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2-Dichloropropane	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,4 Dichloro-2-butene	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
2-butanone	mg/kg	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
ACETONE	mg/kg	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
ACROLEIN	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
ACRYLONITRILE	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
BENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BROMODICHLOROMETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
BROMOMETHANE	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139

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Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
CARBON DISULFIDE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CARBON TETRACHLORIDE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CFC-11	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.00577]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CHLORODIBROMOMETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CHLOROETHANE	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
CHLOROFORM	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CHLOROMETHANE	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
cis-1,2-Dichloroethene	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
cis-1,3-Dichloropropene	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
DIBROMOMETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
DICHLOROMETHANE	mg/kg	<0.00592	<0.00641	0.00900 B	0.00846 B [0.00830 B]	0.00758 B	0.00755 B	<0.00623	<0.00608	<0.00693
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
ETHYLBENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
Iodomethane	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
METHYL N-BUTYL KETONE	mg/kg	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
METHYLBENZENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
NAPHTHALENE	mg/kg	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
STYRENE (MONOMER)	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
TETRACHLOROETHENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
trans-1,2-Dichloroethene	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
trans-1,3-Dichloropropene	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
TRIBOMOMETHANE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
TRICHLOROETHYLENE	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
VINYL ACETATE	mg/kg	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
Vinyl Chloride	mg/kg	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
Xylenes	mg/kg	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
Metals							
ARSENIC	mg/kg	<2.96	<3.27	<3.36	2.92	<3.33	<3.33
BARIUM	mg/kg	85.4	45.8	68.4	73.5	36	62.7
CADMIUM	mg/kg	<5.93	<6.54	<6.71	<5.83	<6.67	<6.67
Chromium	mg/kg	<29.6	<32.7	<33.6	<29.2	<33.3	<33.3
Hexavalent Chromium	mg/kg	<1.19	<1.31	<1.34	<1.17	<1.33	<1.33
LEAD	mg/kg	5.22	<3.27	<3.36	3.87	<3.33	<3.33
MERCURY	mg/kg	<0.0237	<0.0261	<0.0268	<0.0233	<0.0267	<0.0267
SELENIUM	mg/kg	<2.96	<3.27	<3.36	<2.92	<3.33	<3.33
SILVER	mg/kg	72.4	<32.7	<33.6	<29.2	<33.3	<33.3
Parameters							
TPH	mg/kg	<35.5	<39.1	<40.2	<34.9	<39.9	<39.9
PCBs							
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide							
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA
SVOCs							
1,2,4-TRICHLOROBENZENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2-BENZPHENANTHRACENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
1,4-DICHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1-Chloronaphthalene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4,5-TRICHLOROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4,6-Trichlorophenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DICHLOROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DIMETHYLPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DINITROPHENOL	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2,4-DINITROTOLUENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,6-DINITROTOLUENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-CHLORONAPHTHALENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-CHLOROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-METHYLNAPHTHALENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methylphenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-NITROANILINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-NITROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,3'-DICHLOROBENZIDINE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3-NITROANILINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Chloro-3-methylphenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Methyl Phenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
4-NITROPHENOL	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
Acenaphthene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ACENAPHTHYLENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ANTHRACENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZIDINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
Benzo(a)anthracene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(a)pyrene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(b)fluoranthene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(g,h,i)perylene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(k)fluoranthene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZOIC ACID	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
BENZYL ALCOHOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZYL BUTYL PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis (2-chloroethoxy) methane	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis(2-Chloroethyl) ether	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Dibenz(a,h)anthracene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIBENZOFURAN	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIETHYL PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIMETHYL PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-butyl phthalate	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-octyl phthalate	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIPHENYLAMINE	mg/kg	<1.18	<1.30	<1.34	<1.16	<1.33	<1.33
FLUORANTHENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
FLUORENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROBENZENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROETHANE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Indeno(1,2,3-cd)pyrene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
M-DICHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
n-Nitrosodi-n-propylamine	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSODIPHENYLAMINE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
P-CHLOROANILINE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PENTACHLOROPHENOL	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PHENANTHRENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
P-NITROANILINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PYRENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
TPHs							
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA
VOCs							
1,1,1-Trichloroethane	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2-TRICHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHYLENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2,3-Trichloropropane	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DICHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DICHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-Dichloropropane	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,4 Dichloro-2-butene	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
2-butanone	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
ACETONE	mg/kg	<0.0237	<0.0262	0.0374	<0.0233	<0.0233	<0.0267
ACROLEIN	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ACRYLONITRILE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
BENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BROMODICHLOROMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BROMOMETHANE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133

Table E.8.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
CARBON DISULFIDE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CARBON TETRACHLORIDE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CFC-11	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLORODIBROMOMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROETHANE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CHLOROFORM	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROMETHANE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
cis-1,2-Dichloroethene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
cis-1,3-Dichloropropene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DIBROMOMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DICHLOROMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00667	<0.00667
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ETHYLBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
Iodomethane	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
METHYL N-BUTYL KETONE	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
METHYLBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
NAPHTHALENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
STYRENE (MONOMER)	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TETRACHLOROETHENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,2-Dichloroethene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,3-Dichloropropene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRIBOMOMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRICHLOROETHYLENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
VINYL ACETATE	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
Vinyl Chloride	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
Xylenes	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B1	141B2	141B3	141B4	141B5
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	3	3	3	3
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	04/30/92	04/30/92	04/30/92	04/30/92	04/30/92
Metals															
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1	<0.490	0.65	1.7	<0.490
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100	<110	<99.0	120	<97.0
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.50	<2.70	<2.50	<2.70	<2.40
Chromium	mg/kg	<5.97	<6.44	<6.51	<6.26	<16.1	<16.3	<13.5	<15.3	<6.56	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.19	<1.29	<1.30	<1.25	<1.29	<1.30	<1.08	<1.22	<1.31	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25.0	<27.0	<25.0	<27.0	<24.0
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.0700	<0.100	<0.0900	<0.100
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.450	<0.490	<0.450	<0.480	<0.490
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	<5.40	<5.00	<5.40	<4.90
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other															
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters															
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0
PCBs															
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Pesticides/Herbicide															
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
SVOCs															
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B1	141B2	141B3	141B4	141B5
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	3	3	3	3
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	04/30/92	04/30/92	04/30/92	04/30/92	04/30/92
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.70	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B1	141B2	141B3	141B4	141B5
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	3	3	3	3
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	04/30/92	04/30/92	04/30/92	04/30/92	04/30/92
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.330	<0.330	<0.330	<0.330	<0.330
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs															
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0
VOCs															
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B1	141B2	141B3	141B4	141B5
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	3	3	3	3
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	04/30/92	04/30/92	04/30/92	04/30/92	04/30/92
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	141B6 3 05/01/92	141B7 3 05/01/92	141B8 3 05/01/92	141B9 3 05/01/92	141B10 5 05/01/92	141B11 5 05/01/92	141B12 3 05/01/92	141B13 4 05/01/92	141B14 7 05/01/92	141BG1 2 04/30/92	HLSF-SB-023 10 - 11 11/07/06	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-025 10 - 11 11/03/06	HLSF-SB-026 10 - 11 11/06/06
Metals															
ARSENIC	mg/kg	<0.490	1.7	1.7	1.9	<0.560	<0.420	1.8	0.75	0.96	0.54	<2.00	<2.00	<2.00	<2.00
BARIUM	mg/kg	<110	96	92	140	<100	<93.0	<88.0	<110	<93.0	<92.0	30.7	27.2	31.8	22.3
CADMIUM	mg/kg	<2.60	<1.10	<0.950	<1.10	<2.60	<2.30	<2.20	<2.70	<2.30	<2.30	<0.100	<0.100	<0.100	<0.100
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.54	2.05	2.61	3.81
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.16	1.63	1.5	2.08
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	<26.0	<11.0	<9.50	<11.0	<26.0	<23.0	<22.0	<27.0	<23.0	<23.0	2.21	<1.00	2.3	2.92
MERCURY	mg/kg	<0.0900	<0.100	<0.100	<0.0900	<0.100	<0.100	<0.0700	<0.100	<0.100	<0.100	<0.0400	<0.0400	<0.0400	<0.0400
SELENIUM	mg/kg	<0.490	<0.560	<0.560	<0.600	<0.560	<0.420	<0.00500	<0.550	<0.490	<0.500	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	<5.30	<2.10	<1.90	<2.10	<5.20	<4.60	<4.40	<5.30	<4.60	<4.60	<0.0500	<0.0500	<0.0500	<0.0500
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	870	655	1,760	980
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.88	3.73	4.07	5.52
Other															
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.89	5.69	5.19	4.9
Parameters															
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.82	5.15	15.4	1.15
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35.5	34.9	47	84.1
TPH	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NA	NA	NA	NA
PCBs															
Aroclor 1221	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Aroclor 1232	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Aroclor 1242	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Aroclor 1254	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Aroclor 1260	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Aroclor-1016	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Aroclor-1248	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
Pesticides/Herbicide															
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
4,4-DDD	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
4,4-DDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
4,4-DDT	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
ALDRIN	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
alpha-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
beta-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	NA	NA	NA	NA
CHLORDANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	NA	NA	NA	NA
D-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
DIELDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
Endosulfan I	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
Endosulfan II	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
ENDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	NA	NA	NA	NA
G-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
HEPTACHLOR	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	NA	NA	NA	NA
SVOCs															
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		141B6	141B7	141B8	141B9	141B10	141B11	141B12	141B13	141B14	141BG1	HLSF-SB-023	HLSF-SB-024	HLSF-SB-025	HLSF-SB-026
Sample Depth(ft):		3	3	3	3	5	5	3	4	7	2	10 - 11	10 - 11	10 - 11	10 - 11
Date Collected:	Units	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	04/30/92	11/07/06	11/06/06	11/03/06	11/06/06
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.250	<0.250	<0.250	<0.250
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.250	<0.250	<0.250	<0.250
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.250	<0.250	<0.250	<0.250
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.250	<0.250	<0.250	<0.250
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.250	<0.250	<0.250	<0.250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<0.250	<0.250	<0.250	<0.250
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.250	<0.250	<0.250	<0.250
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	0.4	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	141B6 3 05/01/92	141B7 3 05/01/92	141B8 3 05/01/92	141B9 3 05/01/92	141B10 5 05/01/92	141B11 5 05/01/92	141B12 3 05/01/92	141B13 4 05/01/92	141B14 7 05/01/92	141BG1 2 04/30/92	HLSF-SB-023 10 - 11 11/07/06	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-025 10 - 11 11/03/06	HLSF-SB-026 10 - 11 11/06/06
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.250	<0.250	<0.250	<0.250
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.250	<0.250	<0.250	<0.250
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250
TPHs															
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50.0	<50.0	<50.0	<50.0
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00
PETROLEUM HYDROCARBONS	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NA	NA	NA	NA
VOCs															
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	0.72	0.19	0.42	<0.100	<0.100	0.19	0.17	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0100	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.250	<0.250	<0.250	<0.250
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		141B6	141B7	141B8	141B9	141B10	141B11	141B12	141B13	141B14	141BG1	HLSF-SB-023	HLSF-SB-024	HLSF-SB-025	HLSF-SB-026
Sample Depth(ft):		3	3	3	3	5	5	3	4	7	2	10 - 11	10 - 11	10 - 11	10 - 11
Date Collected:	Units	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	04/30/92	11/07/06	11/06/06	11/03/06	11/06/06
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HLSF-SB-037 10 - 11 11/14/06	HLSF-SB-038 10 - 11 11/14/06	HLSF-SB-039 10 - 11 11/14/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93
Metals													
ARSENIC	mg/kg	<2.00 [<2.00]	NA	<2.00	<2.00	<2.00	0.59	<0.440	8.56	9.64	5.48	11.6	3.74
BARIUM	mg/kg	38.7 [47.8]	NA	33	37.9	38.4	<93.0	<93.0	73	179	72	104	97.8
CADMIUM	mg/kg	<0.100 [<0.100]	NA	<0.100	<0.100	<0.100	<2.30	<2.30	<1.12	<1.14	<1.28	<1.33	<5.97
Chromium	mg/kg	2.58 [2.93]	NA	3.27	4.32	3.97	NA	NA	6.4	19.3	<1.28	16	<29.8
COPPER	mg/kg	2.09 [2.49]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00 [<5.00]	NA	NA	NA	NA	NA	NA	NA	NA	<6.41	NA	<1.19
LEAD	mg/kg	4.42 [5.22]	NA	3.52	3.61	4.13	<23.0	<23.0	<2.80	14.7	<1.28	9.99	8.17
MERCURY	mg/kg	<0.0400 [<0.0400]	NA	<0.0400	<0.0400	<0.0400	<0.100	<0.100	0.0258	<0.0227	0.0386	<0.0267	<0.0239
SELENIUM	mg/kg	<1.00 [<1.00]	NA	<1.00	<1.00	<1.00	<0.440	<0.440	<2.80	<2.83	<3.21	<3.33	<2.98
SILVER	mg/kg	<0.0500 [<0.0500]	NA	<0.0500	<0.0500	<0.0500	<4.60	<4.70	10.8	8.84	16.7	17.3	<29.8
SODIUM	mg/kg	680 [750]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	6.58 [7.53]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other													
FOC	%	5.35 [4.59]	4.98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters													
Nitrate + Nitrite	mg/kg	3.16 [2.89]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	64.1 [86.0]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	<13.0	<13.0	<33.6	<33.9	<38.5	<39.9	<35.8
PCBs													
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	<0.0500	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91
1,3,5-Trimethylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0100	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1-Chloronaphthalene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
1-Methylnaphthalene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HLSF-SB-037 10 - 11 11/14/06	HLSF-SB-038 10 - 11 11/14/06	HLSF-SB-039 10 - 11 11/14/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93
2,4,6-Trichlorophenol	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2,4-DICHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2,4-DIMETHYLPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2,4-DINITROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91
2,4-DINITROTOLUENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2,6-DICHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2-Butoxy Ethanol	mg/kg	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2-CHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
2-Methyl pyridine	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91
2-METHYLNAPHTHALENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
2-Methylphenol	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
2-Naphthylamine	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91
2-NITROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
3,3'-DICHLOROBENZIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.700	<0.700	<0.370	<0.374	<0.424	<0.440	<0.394
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
3-METHYLCHLORANTHRENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91
4-Aminobiphenyl	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
4-Chloro-3-methylphenol	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.700	<0.700	<0.370	<0.374	<0.424	<0.440	<0.394
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
4-CHLOROTOLUENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J
4-NITROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
ACENAPHTHYLENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	NA	NA	NA	NA	<0.394
ACETOPHENONE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
BENZIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<1.70	<1.70	<1.79	<1.81	<2.06	<2.13	<1.91
Benzo(a)anthracene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Benzo(a)pyrene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Benzo(b)fluoranthene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Benzo(g,h,i)perylene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Benzo(k)fluoranthene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
BENZOIC ACID	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91
BENZYL ALCOHOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
BENZYL BUTYL PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
bis (2-chloroethoxy) methane	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
bis(2-Chloroethyl) ether	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
CHLOROPHENOLS	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
DIBENZ[A,J]ACRIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
DIETHYL PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
DIMETHYL PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Di-n-butyl phthalate	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Di-n-octyl phthalate	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
DIPHENYLAMINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<1.12	<1.13	<1.28	<1.33	<1.19
Diphenylhydrazine	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HLSF-SB-037 10 - 11 11/14/06	HLSF-SB-038 10 - 11 11/14/06	HLSF-SB-039 10 - 11 11/14/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93
ETHYL METHANESULFONATE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
FLUORENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	<0.0500	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
HEXACHLOROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
HEXACHLOROETHANE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
Indeno(1,2,3-cd)pyrene	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
m,p-Cresol	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0100	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.330	<0.330	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
N-NITROSODI-N-BUTYLAMINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
N-NITROSOPIPERIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394
PENTACHLOROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91
PHENACETIN	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
PHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
P-NITROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91
PROPYZAMIDE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
PYRIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs													
DRO	mg/kg	<50.0 [<50.0]	<50.0	<50.0	<50.0	<50.0	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	<13.0	<13.0	NA	NA	NA	NA	NA
VOCs													
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,1-DICHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,1-DICHLOROETHYLENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,1-Dichloropropene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0100	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,2-DICHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,2-Dichloropropane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
1,3-DICHLOROPROPANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
1,4-Dioxane	mg/kg	<0.500 [<0.500]	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.100	<0.100	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
2-CHLOROTOLUENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	<0.200	<0.200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
ACRYLONITRILE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.100	<0.100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
BENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.250 [<0.250]	<0.250	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
BROMOBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HLSF-SB-037 10 - 11 11/14/06	HLSF-SB-038 10 - 11 11/14/06	HLSF-SB-039 10 - 11 11/14/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93
BROMOMETHANE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.00500	<0.00500	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
CARBON DISULFIDE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
CARBON TETRACHLORIDE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
CFC-11	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
CFC-12	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
CHLOROBROMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
CHLOROFORM	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
cis-1,2-Dichloroethene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
cis-1,3-Dichloropropene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
DIBROMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
DICHLOROMETHANE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.00500	<0.00500	NA	NA	NA	NA	<0.00597
ETHANOL	mg/kg	NA	NA	NA	NA	NA	<1.00	<1.00	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
ETHYLBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
Iodomethane	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0200	<0.0200	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J
METHYLBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
MTBE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	<0.0500	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394
n-Butylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
TERT-BUTYL ALCOHOL	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
trans-1,2-Dichloroethene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
trans-1,3-Dichloropropene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
TRICHLOROETHYLENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J
Xylenes	mg/kg	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
Metals											
ARSENIC	mg/kg	3.19	<3.33	4.86	<3.20	<3.35	3.51	3.42	<3.34	<3.10	NA
BARIUM	mg/kg	37	70.6	108	74.3	89.7	97.8	102	77.4	94.4	NA
CADMIUM	mg/kg	<6.38	<6.66	<5.94	<6.40	<6.69	<3.06	<6.08	<6.68	<6.21	NA
Chromium	mg/kg	<31.9	<33.3	<29.7	<32.0	<33.5	<15.3	<30.4	<33.4	<31.0	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.28	<1.33	<1.19	<1.28	<1.34	<1.22	<1.22	<1.34	<1.24 J	NA
LEAD	mg/kg	<3.19	<3.33	6.84	<3.20	<3.35	6	<3.04	<3.34	4.3	NA
MERCURY	mg/kg	<0.0255	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0243	<0.0267	<0.0248	NA
SELENIUM	mg/kg	<3.19	<3.33	<2.97	<3.20	<3.35	<3.06	<3.04	<3.34	<3.10	NA
SILVER	mg/kg	<31.9	74.6	<29.7	38.4	40.2	<15.3	35.3	74.8	48.4	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other											
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters											
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<38.2	<39.8	<35.6	<38.3	<40.1	<36.6	<36.4	<39.9	<37.2	<37.8
PCBs											
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide											
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs											
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1-Chloronaphthalene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
2,4,6-Trichlorophenol	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4-DICHLOROPHENOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4-DIMETHYLPHENOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4-DINITROPHENOL	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
2,4-DINITROTOLUENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-CHLOROPHENOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
2-METHYLNAPHTHALENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Methylphenol	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
2-NITROPHENOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
3,3'-DICHLOROBENZIDINE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-Chloro-3-methylphenol	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
4-NITROPHENOL	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
ACENAPHTHYLENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BENZIDINE	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
Benzo(a)anthracene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(a)pyrene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(b)fluoranthene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(g,h,i)perylene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(k)fluoranthene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BENZOIC ACID	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
BENZYL ALCOHOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BENZYL BUTYL PHTHALATE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
bis (2-chloroethoxy) methane	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
bis(2-Chloroethyl) ether	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIETHYL PHTHALATE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIMETHYL PHTHALATE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Di-n-butyl phthalate	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	0.592	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Di-n-octyl phthalate	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIPHENYLAMINE	mg/kg	<1.27 [<1.24]	<1.33	<1.19	<1.28	<1.34	<1.22	<1.21 [<1.29]	<1.33	<1.24	<1.26
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
FLUORENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLOROBENZENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLOROETHANE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Indeno(1,2,3-cd)pyrene	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
N-NITROSODIPHENYLAMINE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.421 [<0.00621]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.00646]	<0.440	<0.410	<0.416
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
PHENOL	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
P-NITROANILINE	mg/kg	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs											
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs											
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1,2-TRICHLOROETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1-DICHLOROETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1-DICHLOROETHYLENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,2-DICHLOROETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,2-Dichloropropane	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
ACROLEIN	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
ACRYLONITRILE	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
BENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
BROMOMETHANE	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
CARBON DISULFIDE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CARBON TETRACHLORIDE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CFC-11	mg/kg	<0.0128 [<0.00621]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.00646]	<0.0134	<0.0124	<0.0126
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CHLOROETHANE	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
CHLOROFORM	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CHLOROMETHANE	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
cis-1,2-Dichloroethene	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
cis-1,3-Dichloropropene	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
DIBROMOMETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
DICHLOROMETHANE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00608 [<0.00646]	<0.00668	<0.00621	<0.00630
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
ETHYLBENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
Iodomethane	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
METHYLBENZENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
trans-1,2-Dichloroethene	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
trans-1,3-Dichloropropene	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00638	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611	<0.00668	<0.00621	<0.00630
TRICHLOROETHYLENE	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
VINYL ACETATE	mg/kg	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
Vinyl Chloride	mg/kg	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
Xylenes	mg/kg	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
Metals											
ARSENIC	mg/kg	<3.46	<2.96	<3.20	<3.41	3.57	3.38	<3.43	<3.12	3.46	<3.47
BARIUM	mg/kg	111	72.2	55.1	95.5	112	97.2	92	47.4	70.5	94.3
CADMIUM	mg/kg	<3.46	<2.96	<12.8	<6.82	<6.22	<5.92	<6.87	<6.23	<6.08	<6.93
Chromium	mg/kg	<17.3	<14.8	<32.1	<34.1	<31.1	<29.6	<34.3	<31.2	<30.4	<34.7
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.38	<1.18	<1.28	<1.36	<1.24	<1.18	<1.37	<1.25	<1.22 J	<1.39
LEAD	mg/kg	<3.46	6.12	3.92	<3.41	6.3	5.44	4.48	3.65	6.63	4.2
MERCURY	mg/kg	<0.0277	<0.0237	<0.0256	<0.0273	<0.0249	<0.0237	<0.0275	0.0474	<0.0243	<0.0277
SELENIUM	mg/kg	<3.46	<2.96	<3.20	<3.41	<3.11	<2.96	<3.43	<3.12	<3.04	<3.47
SILVER	mg/kg	<17.3	<14.8	<32.1	46.4	54.7	<29.6 J	<34.3	<31.2	<30.4	<34.7
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other											
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters											
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<41.5	<35.4	<38.4	<40.8	<37.2	<35.5	<41.1	<37.3	<36.4	<41.6
PCBs											
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide											
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs											
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1-Chloronaphthalene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
2,4,6-Trichlorophenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4-DICHLOROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4-DIMETHYLPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,4-DINITROPHENOL	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
2,4-DINITROTOLUENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-CHLOROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
2-METHYLNAPHTHALENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-Methylphenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
2-NITROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
3,3'-DICHLOROBENZIDINE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-Chloro-3-methylphenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
4-NITROPHENOL	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
ACENAPHTHYLENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BENZIDINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
Benzo(a)anthracene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(a)pyrene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(b)fluoranthene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(g,h,i)perylene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Benzo(k)fluoranthene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BENZOIC ACID	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
BENZYL ALCOHOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BENZYL BUTYL PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
bis (2-chloroethoxy) methane	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
bis(2-Chloroethyl) ether	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIETHYL PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIMETHYL PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Di-n-butyl phthalate	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Di-n-octyl phthalate	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
DIPHENYLAMINE	mg/kg	<1.38	<1.18	<1.28	<1.36	<1.24 [<1.15]	<1.18	<1.37	<1.24	<1.21	<1.39
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
FLUORENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLOROBENZENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
HEXACHLOROETHANE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
Indeno(1,2,3-cd)pyrene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
N-NITROSODIPHENYLAMINE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.00577]	<0.391	<0.453	<0.411	<0.401	<0.458
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
PHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
P-NITROANILINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94	<2.22
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs											
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs											
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1,2-TRICHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHYLENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00672 J [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2-DICHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,2-Dichloropropane	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
ACROLEIN	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
ACRYLONITRILE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
BENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
BROMOMETHANE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
CARBON DISULFIDE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CARBON TETRACHLORIDE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CFC-11	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.00577]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CHLOROETHANE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
CHLOROFORM	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
CHLOROMETHANE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
cis-1,2-Dichloroethene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
cis-1,3-Dichloropropene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
DIBROMOMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
DICHLOROMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	0.00900 B	0.00846 B [0.00830 B]	0.00758 B	0.00755 B	<0.00623	<0.00608	<0.00693
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
ETHYLBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
Iodomethane	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
METHYLBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401	<0.458
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
trans-1,2-Dichloroethene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
trans-1,3-Dichloropropene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
TRICHLOROETHYLENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693
VINYL ACETATE	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243	<0.0277
Vinyl Chloride	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122	<0.0139
Xylenes	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608	<0.00693

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
Metals							
ARSENIC	mg/kg	<2.96	<3.27	<3.36	2.92	<3.33	<3.33
BARIUM	mg/kg	85.4	45.8	68.4	73.5	36	62.7
CADMIUM	mg/kg	<5.93	<6.54	<6.71	<5.83	<6.67	<6.67
Chromium	mg/kg	<29.6	<32.7	<33.6	<29.2	<33.3	<33.3
COPPER	mg/kg	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.19	<1.31	<1.34	<1.17	<1.33	<1.33
LEAD	mg/kg	5.22	<3.27	<3.36	3.87	<3.33	<3.33
MERCURY	mg/kg	<0.0237	<0.0261	<0.0268	<0.0233	<0.0267	<0.0267
SELENIUM	mg/kg	<2.96	<3.27	<3.36	<2.92	<3.33	<3.33
SILVER	mg/kg	72.4	<32.7	<33.6	<29.2	<33.3	<33.3
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA
Other							
FOC	%	NA	NA	NA	NA	NA	NA
Parameters							
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<35.5	<39.1	<40.2	<34.9	<39.9	<39.9
PCBs							
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide							
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA
SVOCs							
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1-Chloronaphthalene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
2,4,6-Trichlorophenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DICHLOROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DIMETHYLPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DINITROPHENOL	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2,4-DINITROTOLUENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-CHLOROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-METHYLNAPHTHALENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methylphenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-NITROPHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,3'-DICHLOROBENZIDINE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Chloro-3-methylphenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
4-NITROPHENOL	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ACENAPHTHYLENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZIDINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
Benzo(a)anthracene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(a)pyrene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(b)fluoranthene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(g,h,i)perylene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(k)fluoranthene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZOIC ACID	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
BENZYL ALCOHOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZYL BUTYL PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis (2-chloroethoxy) methane	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis(2-Chloroethyl) ether	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIETHYL PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIMETHYL PHTHALATE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-butyl phthalate	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-octyl phthalate	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIPHENYLAMINE	mg/kg	<1.18	<1.30	<1.34	<1.16	<1.33	<1.33
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
FLUORENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROBENZENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROETHANE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Indeno(1,2,3-cd)pyrene	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSODIPHENYLAMINE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PHENOL	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
P-NITROANILINE	mg/kg	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA
TPHs							
DRO	mg/kg	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA
VOCs							
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2-TRICHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHYLENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DICHLOROETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-Dichloropropane	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.0237	<0.0262	0.0374	<0.0233	<0.0233	<0.0267
ACROLEIN	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ACRYLONITRILE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
BENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.8.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
BROMOMETHANE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CARBON DISULFIDE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CARBON TETRACHLORIDE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CFC-11	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROETHANE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CHLOROFORM	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROMETHANE	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
cis-1,2-Dichloroethene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
cis-1,3-Dichloropropene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DIBROMOMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DICHLOROMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00667	<0.00667
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ETHYLBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
Iodomethane	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
METHYLBENZENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
MTBE	mg/kg	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,2-Dichloroethene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,3-Dichloropropene	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRICHLOROETHYLENE	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
VINYL ACETATE	mg/kg	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
Vinyl Chloride	mg/kg	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
Xylenes	mg/kg	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.8.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
Explosives																		
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
2,6-DNT / 2,4-DNT	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	0.000702	NA	0.000939	0.000630	0.000897	NA	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
3-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
4-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
RDX	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
TETRYL	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
Metals																		
ALUMINUM	mg/L	3.90	0.337	<0.0300	1.34	0.0510	<0.0300	NA	1.86	0.520	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA
ANTIMONY	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0200
ARSENIC	mg/L	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100
BARIUM	mg/L	<0.100	<0.100	0.0130	0.0350	0.0260	0.0420	NA	<0.100	<0.100	0.0120	0.0110	0.0170	<0.0100	<0.0100	0.0100	0.0100	0.0100
BERYLLIUM	mg/L	<0.00250	0.00400	0.00300	<0.00250	0.00700	<0.00250	NA	<0.00250	0.00400	<0.00250	<0.00250	0.00800	<0.00250	NA	<0.00250	<0.00200	<0.00200
BORON	mg/L	4.42	4.67	5.23	3.94	5.14	4.26	NA	4.67	4.49	3.95	4.03	3.46	2.75	NA	NA	NA	NA
CADMIUM	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	0.00600	<0.00100	0.00300	<0.00500	<0.00500	<0.00100	<0.00100	0.00700	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200
CALCIUM METAL	mg/L	NA	NA	NA	NA	357	454	NA	NA	NA	NA	NA	493	569	NA	NA	NA	NA
Chromium	mg/L	0.150	0.180	0.165	<0.0100	0.150	0.115	0.121	<0.0100	<0.0100	<0.0100	<0.0100	0.0200	<0.00500	<0.00500	<0.00500	0.00800	<0.00500
COBALT	mg/L	<0.0200	<0.0200	<0.0200	<0.00500	0.00600	<0.00500	NA	<0.0200	<0.0200	<0.0200	<0.00500	0.00600	<0.00500	NA	<0.00500	<0.00200	<0.00200
COPPER	mg/L	<0.0125	0.0420	0.0780	0.0460	0.0460	0.0120	<0.00500	<0.0125	0.0280	0.0110	<0.00500	0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Hexavalent Chromium	mg/L	0.263	0.220	0.178	0.188	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA
Iron	mg/L	2.18	0.267	0.0250	0.944	0.0810	0.134	NA	1.14	0.365	<0.0100	0.0170	0.0140	<0.0100	NA	NA	NA	NA
LEAD	mg/L	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	0.813	0.382	NA	NA	NA	NA	NA	0.813	0.175	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	695	780	NA	NA	NA	NA	NA	414	467	NA	NA	NA	NA
MANGANESE	mg/L	0.0320	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500	NA	0.0260	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA
MERCURY	mg/L	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.331	0.352	0.285	0.245	0.320	0.268	NA	0.242	0.239	0.158	0.226	0.210	0.205	NA	NA	NA	NA
NICKEL	mg/L	<0.0250	<0.0250	<0.0100	<0.0100	0.0120	0.0120	NA	<0.0250	<0.0250	<0.0100	<0.0100	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500
POTASSIUM	mg/L	NA	NA	NA	NA	105	126	NA	NA	NA	NA	NA	97.4	87.2	NA	NA	NA	NA
SELENIUM	mg/L	<0.0500	<0.0500	0.129	<0.0100	0.0830	0.0800	NA	<0.0500	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0100	0.0310
SILVER	mg/L	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500
SODIUM	mg/L	NA	NA	NA	NA	2,470	3,060	3,640	NA	NA	NA	NA	686	959	1,190	NA	NA	NA
STRONTIUM	mg/L	7.03	6.32	16.7	11.4	5.65	15.0	NA	5.15	5.05	11.2	8.80	5.31	4.60	NA	NA	NA	NA
THALLIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0500
TIN	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	0.0370	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.100
Total Cyanide	mg/L	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	NA
VANADIUM (FUME OR DUST)	mg/L	<0.0250	0.0390	0.0370	0.0650	0.0700	0.0350	NA	0.0260	0.0250	<0.0250	0.0260	0.0480	0.0130	NA	0.0200	0.0220	0.0180
ZINC	mg/L	<0.0250	<0.0250	<0.00500	<0.00500	0.0130	0.0210	<0.00500	<0.0250	<0.0250	<0.00500	<0.00500	0.0140	0.0190	<0.00500	<0.0100	<0.00700	<0.00500
Metals-Dissolved																		
Aluminum, Dissolved	mg/L	<0.0500	<0.0500	<0.0500	0.700	<0.0300	<0.0300	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA
Barium, Dissolved	mg/L	<0.100	<0.0100	0.0130	<0.0100	0.0200	0.0340	NA	<0.100	0.0140	0.0100	0.0110	<0.0100	<0.0100	<0.0100	NA	NA	NA
Beryllium, Dissolved	mg/L	<0.00250	<0.00250	0.00300	<0.00250	0.00700	<0.00250	NA	<0.00250	<0.00250	0.0110	<0.00250	0.00800	<0.00250	NA	NA	NA	NA
Boron, Dissolved	mg/L	4.39	5.54	4.84	3.56	5.06	3.61	NA	4.53	5.02	3.81	4.02	3.41	2.87	NA	NA	NA	NA
Cadmium, Dissolved	mg/L	<0.0250	<0.00100	<0.00100	<0.00100	0.00600	<0.00100	<0.00100	<0.0250	<0.00100	<0.00100	<0.00100	0.00700	<0.00100	<0.00100	NA	NA	NA
Calcium, Dissolved	mg/L	317	352	382	519	368	369	NA	422	467	503	512	468	509	NA	NA	NA	NA
Chromium, Dissolved	mg/L	0.150	0.210	0.165	<0.00500	0.150	0.0680	0.0950	<0.0100	<0.00500	<0.0100	<0.00500	0.0190	<0.00500	<0.00500	NA	NA	NA
Cobalt, Dissolved	mg/L	<0.0250	<0.00500	<0.0250	<0.00500	0.00600	<0.00500	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.00600	<0.00500	NA	NA	NA	NA
Copper, Dissolved	mg/L	<0.0125	<0.0125	0.0770	0.0400	0.0460	<0.0125	<0.0125	<0.0125	0.0350	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	NA	NA	NA
Dissolved Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000200	NA	NA	NA
Iron, Dissolved	mg/L	<0.0500	<0.0500	0.0120	<0.0100	<0.0100	0.0120	NA	<0.0500	<0.0500	<0.0100	<0.0100	0.0120	0.0120	NA	NA	NA	NA
Lead, Dissolved	mg/L	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA
Lithium, Dissolved	mg/L	<0.00500	0.977	0.991	0.600	0.803	0.155	NA	0.451	0.908	0.805	0.470	0.807	0.176	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	590	791	811	426	748	714	NA	354	401	405	421	394	410	NA	NA	NA	NA
Manganese, Dissolved	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	0.331	0.395	0.262	0.225	0.320	0.224	NA	0.234	0.282	0.146	0.216	0.210	0.207	NA	NA	NA	NA
Nickel, Dissolved	mg/L	<0.0250	<0.00500	<0.0250	<0.00500	0.0120	0.00800	NA	<0.0250	0.00900	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA
Potassium, Dissolved	mg/L	113	NA	NA	NA	98.2	106	NA	92.5	NA	NA	NA	106	105	NA	NA	NA	NA
Selenium, Dissolved	mg/L	0.123	<0.0100	0.129	<0.0100	0.0830	0.0600	NA	<0.0500	<0.0100	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA
Silver, Dissolved	mg/L	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	NA	NA
Sodium, Dissolved	mg/L	2,560	NA	2,710	861	2,270	1,890	3,360	832	NA	652	910	677	704	997	NA	NA	NA
Strontium, Dissolved	mg/L	6.94	6.94	15.4	6.90	5.56	6.50	NA	5.01	5.24	10.1	7.01	5.27	4.50	NA	NA	NA	NA
Tin, Dissolved	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	0.0350	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA

Table E.8.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
Vanadium, Dissolved	mg/L	0.0350	<0.00500	0.0360	0.0590	0.0680	0.0200	NA	<0.0250	0.0220	<0.0250	<0.00500	0.0480	<0.00500	NA	NA	NA	NA
Zinc, Dissolved	mg/L	<0.0250	0.0210	<0.0250	<0.00500	0.0130	<0.00500	<0.00500	<0.0250	0.0130	<0.0250	<0.00500	0.0140	0.00800	<0.00500	NA	NA	NA
Parameters																		
ALKALINITY	mg/L	172	202	158	156	162	168	154	142	146	156	158	164	158	154	156	144	150
Alkalinity, Bicarbonate	mg/L	172	202	158	156	162	168	154	142	146	156	158	164	158	154	156	144	150
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA
Bromide	mg/L	1.63	<0.200	<0.200	<0.200	<0.200	1.56	3.43	0.700	<0.200	0.620	0.690	<0.200	<0.200	<1.00	0.520	NA	NA
Chloride (CL)	mg/L	2,300	2,360	2,360	1,980	2,270	2,450	2,160	476	462	352	418	447	444	595	422	297	424
CONDUCTIVITY	mS/cm	17.9	NA	18.6	17.8	16.8	16.4	16.0	8.14	NA	7.41	7.47	6.67	7.07	7.39	7.07	6.28	7.02
CONDUCTIVITY	umhos/cm	1,820	17,400	17,200	17,400	15,700	15,600	15,600	8,310	7,780	6,610	7,600	6,980	6,590	73,500	7,420	6,400	6,800
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0229	NA	NA	NA
FLUORIDE	mg/L	3.23	<0.200	3.28	3.25	5.59	7.02	6.68	3.35	3.35	3.21	3.35	3.42	4.13	4.01	4.02	4.29	4.35
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	80.5	82.2	82.4	69.6	16.5	82.1	78.2	13.6	13.0	9.66	16.8	82.8	14.3	24.7	NA	NA	NA
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.98	11.4	131
Nitrite	mg/L	<0.100	<0.100	<0.100	<0.100	<0.200	<0.200	<1.00	<0.100	<0.100	<0.100	<0.100	<0.200	<0.200	<1.00	NA	NA	NA
PERCHLORATE	mg/L	NA	NA	NA	NA	0.00340	<0.0100	NA	NA	NA	NA	NA	<0.00500	<0.00500	NA	NA	NA	NA
pH	pH Units	7.60	7.54	7.76	7.54	7.74	8.31	7.53	7.50	7.66	7.45	7.42	7.50	8.04	7.62	7.48	7.41	7.37
Phosphorus	mg/L	0.0850	NA	<0.0500	0.199	0.0570	<0.0500	0.0690	<0.0500	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA
SILICA	mg/L	31.5	27.2	26.2	31.1	32.2	29.6	NA	29.5	26.1	28.3	25.2	34.4	29.2	NA	NA	NA	NA
Silica, Dissolved	mg/L	29.2	35.9	24.1	31.0	31.3	22.3	NA	29.2	32.0	27.3	23.8	34.2	30.0	NA	NA	NA	NA
Sulfate	mg/L	7,480	7,230	7,560	7,200	7,410	7,710	7,590	4,680	4,360	3,640	4,120	3,920	4,080	4,570	4,490	3,670	4,100
Temperature	deg c	22.1	NA	20.1	29.0	20.0	25.4	17.8	21.4	NA	23.8	28.1	19.8	24.5	18.9	25.1	23.0	23.2
TKN	mg/L	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	NA	<4.00	<4.00	<4.00	<4.00	<4.00	4.20	NA	NA	NA	NA
Total Dissolved Solids	mg/L	15,800	16,200	15,000	15,800	12,500	14,000	14,200	7,500	7,630	6,420	7,130	5,880	6,090	6,540	7,230	6,160	6,440
TOTAL ORGANIC CARBON	mg/L	2.43	1.60	1.47	4.03	1.70	1.60	NA	1.99	<1.00	1.04	12.1	1.30	1.10	NA	1.88	1.18	NA
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.8.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
4-Methyl Phenol	mg/L	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
P-CHLOROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TPHs																		
DRO	mg/L	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00	<5.00
GRO	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.8.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 141
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	0.00190	0.00186	0.00167	<0.00100	0.00178	0.00163	0.00153	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	0.00166	0.00140	0.00179	<0.00100	0.00219	0.00195	0.00183	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	0.00170	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00191	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.0438	0.0422	0.0383	<0.00100	0.0356	0.0359	0.0318	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Notes for E.9.Attachments 1-4
Risk Assessment Datasets
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
mS/cm =	microSiemens per centimeter
umhos/cm =	micromhos per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyls
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound
TPH =	Total Petroleum Hydrocarbons

Table E.9.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	142BG 1 04/06/92	CFW-04 1 04/29/93	CFW-04 2 04/29/93	East Bore #3 1 03/21/90	North Bore #4 1 03/23/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	West Bore #1 1.5 03/16/90
Metals									
ARSENIC	mg/kg	<0.450	NA	<0.610	53.0	13.0	NA	13.0	20.0
BARIUM	mg/kg	<92.0	NA	<91.0	160	330	NA	130	120
CADMIUM	mg/kg	<2.30	NA	<2.30	1.20	1.80	NA	1.50	1.00
Chromium	mg/kg	NA	NA	<4.50	2.00	4.80	NA	4.50	2.80
Hexavalent Chromium	mg/kg	NA	NA	<0.0500	NA	NA	NA	NA	NA
LEAD	mg/kg	<23.0	NA	<0.610	14.0	18.0	NA	16.0	10.0
MERCURY	mg/kg	<0.0900	NA	<0.0240	<0.0200	<0.0200	NA	<0.0200	<0.0200
SELENIUM	mg/kg	<0.450	NA	<0.610	45.0	23.0	NA	73.0	53.0
SILVER	mg/kg	<4.60	NA	NA	NA	NA	NA	NA	NA
Parameters									
TPH	mg/kg	<13.0	NA	NA	NA	NA	NA	NA	NA
SVOCs									
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	NA	NA	<0.0250	<0.0250	<0.250	<0.0250	<1.25
2,4,6-Trichlorophenol	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.330	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.330	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	142BG 1 04/06/92	CFW-04 1 04/29/93	CFW-04 2 04/29/93	East Bore #3 1 03/21/90	North Bore #4 1 03/23/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	West Bore #1 1.5 03/16/90
Dibenz(a,h)anthracene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
TPHs									
>C10-C28	mg/kg	NA	NA	<13.0	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	<13.0	NA	NA	NA	NA	NA	NA	NA
VOCs									
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	1.20	0.0550	<0.625
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	1.40	<0.0250	<0.625
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
1,2,3-Trichloropropane	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	<0.0250	<0.0250	<0.250	<0.0250	<1.25
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
1,4 Dichloro-2-butene	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	<0.100	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	NA	<0.0500	<0.0500	<0.500	<0.0500	<1.25
ACETONE	mg/kg	<0.100	<0.100	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	<0.200	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
BROMOMETHANE	mg/kg	<0.00500	<0.00500	NA	<0.0500	<0.0500	<0.500	<0.0500	<1.25
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625

Table E.9.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	142BG 1 04/06/92	CFW-04 1 04/29/93	CFW-04 2 04/29/93	East Bore #3 1 03/21/90	North Bore #4 1 03/23/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	West Bore #1 1.5 03/16/90
CFC-11	mg/kg	<0.0100	NA	NA	<0.0250	<0.0250	<0.250	<0.0250	<1.25
CFC-12	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	<0.250	<0.250	<6.25	<0.250	<6.25
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
CHLOROETHANE	mg/kg	<0.0100	<0.0100	NA	<0.0500	<0.0500	<0.500	<0.0500	<1.25
CHLOROFORM	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
CHLOROMETHANE	mg/kg	<0.0100	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.0100	NA	<0.0500	<0.0500	<0.500	<0.0500	<1.25
ETHANOL	mg/kg	<1.00	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
TRIBOMOMETHANE	mg/kg	NA	<0.00500	NA	<0.0250	<0.0250	<0.250	<0.0250	<0.625
TRICHLOROETHYLENE	mg/kg	<0.00500	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	NA	<0.0500	<0.0500	<0.500	<0.0500	<1.25
Xylenes	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142BG	147B1	147B1	CFW-02	CFW-02	CFW-03	CFW-03	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	East Bore #3	East Bore #3
Sample Depth(ft):		1	5	10	3 - 5	8 - 10	3 - 5	8 - 10	1	2	3	4	5	6	7	8	9	10	1	5
Date Collected:	Units	04/06/92	06/08/92	06/08/92	05/20/93	05/20/93	05/18/93	05/18/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	03/21/90	03/21/90
Metals																				
ARSENIC	mg/kg	<0.450	0.730	<0.520	1.10	1.20	<0.570	0.0630	NA	<0.610	NA	<0.560	NA	2.10	NA	4.70	NA	3.10	53.0	43.0
BARIUM	mg/kg	<92.0	<110	<100	<98.0	<100	<93.0	<96.0	NA	<91.0	NA	<83.0	NA	<100	NA	45.0	NA	57.0	160	180
CADMIUM	mg/kg	<2.30	<2.70	<2.60	<2.50	<2.70	<2.30	<2.40	NA	<2.30	NA	<2.10	NA	<2.50	NA	<0.870	NA	<0.440	1.20	1.50
Chromium	mg/kg	NA	NA	NA	<4.90	<5.20	<4.60	<7.30	NA	<4.50	NA	<4.20	NA	<5.00	NA	9.60	NA	4.50	2.00	3.00
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0100	NA	NA
LEAD	mg/kg	<23.0	<27.0	<26.0	<0.610	<0.640	<0.570	<0.610	NA	<0.610	NA	<0.560	NA	1.20	NA	5.30	NA	5.30	14.0	15.0
MERCURY	mg/kg	<0.0900	<0.100	<0.100	<0.0290	<0.0310	<0.0280	<0.0280	NA	<0.0240	NA	<0.0230	NA	<0.0200	NA	<0.0270	NA	<0.210	<0.0200	<0.0200
SELENIUM	mg/kg	<0.450	<0.500	<0.520	<0.610	<0.640	<0.570	<0.610	NA	<0.610	NA	<0.560	NA	<0.590	NA	<0.550	NA	<0.590	45.0	95.0
SILVER	mg/kg	<4.60	<5.30	<5.30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	<0.180	<0.200	<0.190	<0.170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																				
% Solids	%	NA	NA	NA	75.9	70.9	19.0	24.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	1,800	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<13.0	21.0	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																				
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0250	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.330	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<1.70	<1.70	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0660	<0.0710	<0.0620	<0.0660	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	NA	NA
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.330	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	0.460	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142BG	147B1	147B1	CFW-02	CFW-02	CFW-03	CFW-03	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	East Bore #3	East Bore #3
Sample Depth(ft):		1	5	10	3 - 5	8 - 10	3 - 5	8 - 10	1	2	3	4	5	6	7	8	9	10	1	5
Date Collected:	Units	04/06/92	06/08/92	06/08/92	05/20/93	05/20/93	05/18/93	05/18/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	03/21/90	03/21/90
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																				
>C10-C28	mg/kg	NA	NA	NA	<67.0	<71.0	<13.0	<13.0	NA	<13.0	NA	35.0	NA	1,300	NA	1,500	NA	19.0	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	<13.0	21.0	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																				
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0250	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.130	<0.140	<0.120	<0.130	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.130	<0.140	<0.120	<0.130	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	NA	NA
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0250	NA
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.0130	<0.0140	<0.0120	<0.0130	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA
ETHANOL	mg/kg	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0660	<0.0710	<0.0620	<0.0660	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	<0.00700	<0.00700	<0.00600	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA

Table E.9.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	142BG 1 04/06/92	147B1 5 06/08/92	147B1 10 06/08/92	CFW-02 3 - 5 05/20/93	CFW-02 8 - 10 05/20/93	CFW-03 3 - 5 05/18/93	CFW-03 8 - 10 05/18/93	CFW-04 1 04/29/93	CFW-04 2 04/29/93	CFW-04 3 04/29/93	CFW-04 4 04/29/93	CFW-04 5 04/29/93	CFW-04 6 04/29/93	CFW-04 7 04/29/93	CFW-04 8 04/29/93	CFW-04 9 04/29/93	CFW-04 10 04/29/93	East Bore #3 1 03/21/90	East Bore #3 5 03/21/90
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	0.00860	NA	NA	NA

Table E.9.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	East Bore #3 10 03/21/90	HCF-01 4 - 6 03/28/90	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90	West Bore #1 10 03/16/90
Metals													
ARSENIC	mg/kg	25.0	NA	13.0	14.0	18.0	NA	13.0	15.0	15.0	20.0	15.0	15.0
BARIUM	mg/kg	180	NA	330	130	250	NA	130	160	180	120	120	130
CADMIUM	mg/kg	1.50	NA	1.80	2.00	2.50	NA	1.50	1.20	4.00	1.00	1.50	1.80
Chromium	mg/kg	3.00	NA	4.80	4.80	5.00	NA	4.50	3.00	6.50	2.80	3.80	8.50
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	13.0	NA	18.0	20.0	23.0	NA	16.0	19.0	14.0	10.0	12.0	13.0
MERCURY	mg/kg	<0.0200	NA	<0.0200	<0.0200	<0.0200	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
SELENIUM	mg/kg	78.0	NA	23.0	3.00	33.0	NA	73.0	45.0	68.0	53.0	73.0	63.0
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters													
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<1.25	<1.25	<1.25
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	East Bore #3 10 03/21/90	HCF-01 4 - 6 03/28/90	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90	West Bore #1 10 03/16/90
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs													
>C10-C28	mg/kg	NA	2,600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs													
1,1,1-Trichloroethane	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	1.20	0.0550	NA	0.0700	<0.625	<0.625	<0.625
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
1,1,2-TRICHLOROETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
1,1-DICHLOROETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<1.25	1.40	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
1,1-DICHLOROETHYLENE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<1.25	<1.25	<1.25
1,2-DICHLOROETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
1,2-Dichloropropane	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	NA	<0.0500	<0.0500	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	<1.25	<1.25
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
BROMOMETHANE	mg/kg	<0.0500	NA	<0.0500	<0.0500	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	<1.25	<1.25
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
CFC-11	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<1.25	<1.25	<1.25
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	<0.250	NA	<0.250	<0.250	<6.25	<6.25	<0.250	NA	<0.250	<6.25	<6.25	<6.25
CHLOROBENZENE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
CHLORODIBROMOMETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
CHLOROETHANE	mg/kg	<0.0500	NA	<0.0500	<0.0500	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	<1.25	<1.25
CHLOROFORM	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0500	NA	<0.0500	<0.0500	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	<1.25	<1.25
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
trans-1,3-Dichloropropene	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625
TRIBOMOMETHANE	mg/kg	<0.0250	NA	<0.0250	<0.0250	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	<0.625	<0.625

Table E.9.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	East Bore #3 10 03/21/90	HCF-01 4 - 6 03/28/90	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90	West Bore #1 10 03/16/90
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0500	NA	<0.0500	<0.0500	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	<1.25	<1.25
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B1	142B1	142B1	142B1	142B1	142B1	142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3
Sample Depth(ft):		15	19	23	27	33	37	17	19	21	23	27	31	19	23	25	29
Date Collected:	Units	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92
Metals																	
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	<0.540 [<0.500]	14.0	4.50	3.10	1.30	1.00	4.20	2.30	3.50	5.00	3.60	1.70	1.80	1.00	1.60	1.90
BARIUM	mg/kg	<110 [<96.0]	<110	<100	21.0	<20.0	<20.0	<97.0	23.0	30.0	51.0	49.0	35.0	41.0	55.0	110	25.0
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<2.70 [<2.40]	<2.70	<2.50	<0.500	<0.510	<0.510	<2.40	<0.530	<0.510	<0.510	<1.10	<0.520	<0.490	<0.550	<0.510	<0.540
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	<27.0 [<24.0]	<27.0	<25.0	8.40	<5.10	<5.10	<24.0	14.0	9.40	11.0	8.80	5.40	9.90	7.00	<5.10	6.00
MERCURY	mg/kg	<0.0800 [<0.100]	<0.100	<0.0900	<0.100	<0.0900	<0.0800	<0.0800	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0900	<0.100	<0.100
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.540 [<0.500]	<0.510	<0.510	<0.490	<0.560	<0.490	<0.550	<0.450	<0.470	<0.490	<0.560	<0.490	<0.500	<0.520	<0.500	<0.520
SILVER	mg/kg	<5.40 [<4.80]	<5.40	<5.00	<0.990	<1.00	<1.00	<4.90	<1.10	<1.00	<1.00	<2.10	<1.00	<0.980	<1.10	<1.00	<1.10
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																	
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																	
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	770 [700]	2,600	250	<13.0	<11.0	14,000	60.0	3,100	510	420	<10.0	<11.0	2,600	9,100	8,600	7,700
PCBs																	
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B1	142B1	142B1	142B1	142B1	142B1	142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3
Sample Depth(ft):		15	19	23	27	33	37	17	19	21	23	27	31	19	23	25	29
Date Collected:	Units	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	<0.300 [<0.300]	<2.00	<0.300	<0.300	<0.300	<8.00	<0.300	<2.00	<0.300	<0.300	<2.00	<0.300	<0.300	<2.00	<2.00	<2.00
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.70 [<1.70]	<8.30	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	<0.300 [<0.300]	<2.00	<0.300	<0.300	<0.300	<8.00	<0.300	<2.00	<0.300	<0.300	<2.00	<0.300	<0.300	<2.00	<2.00	<2.00
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70 [<1.70]	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B1	142B1	142B1	142B1	142B1	142B1	142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3
Sample Depth(ft):		15	19	23	27	33	37	17	19	21	23	27	31	19	23	25	29
Date Collected:	Units	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	0.400 [0.400]	<0.300	0.370	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	1.70	<0.300	<0.300	1.80	<0.300	2.10
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	1.40 [1.50]	5.00	1.20	<0.300	<0.300	10.0	<0.300	3.30	0.730	0.630	7.90	<0.300	0.860	9.30	5.50	8.90
PHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																	
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B1	142B1	142B1	142B1	142B1	142B1	142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3
Sample Depth(ft):		15	19	23	27	33	37	17	19	21	23	27	31	19	23	25	29
Date Collected:	Units	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/09/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	770 [700]	2,600	250	<13.0	<11.0	14,000	60.0	3,100	510	420	5,100	<11.0	2,600	9,100	8,600	7,700
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00680	0.350	0.0150	0.0180	0.140	<0.00500	0.0520	0.0970	0.810	0.0600
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	0.0160	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00960	<0.00500	<0.00500	<0.00500	<0.00500	0.0950	0.0680	0.0670	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100 [0.120]	1.10	<0.100	<0.100	<0.100	1.80	0.120	1.00	<0.100	<0.100	<0.100	<0.100	0.640	1.10	6.10	<0.100
ACROLEIN	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500 [<0.00500]	0.0130	<0.00500	<0.00500	<0.00500	0.270	<0.00500	0.0270	0.00700	0.00720	0.0110	<0.00500	<0.00500	0.150	0.580	0.0440
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.0250	<0.0250	<0.0130
ETHANOL	mg/kg	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	0.0180 [<0.00500]	0.0120	<0.00500	<0.00500	<0.00500	1.10	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0440	0.770	3.50	0.410
Iodomethane	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00960	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	0.460 [0.500]	3.80	0.740	<0.300	<0.300	12.0	<0.300	3.40	0.470	0.360	6.80	<0.300	0.730	9.30	6.20	9.20
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	142B1 15 06/09/92	142B1 19 06/09/92	142B1 23 06/09/92	142B1 27 06/09/92	142B1 33 06/09/92	142B1 37 06/09/92	142B2 17 06/10/92	142B2 19 06/10/92	142B2 21 06/10/92	142B2 23 06/10/92	142B2 27 06/10/92	142B2 31 06/10/92	142B3 19 06/10/92	142B3 23 06/10/92	142B3 25 06/10/92	142B3 29 06/10/92
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500 [<0.00500]	0.0170	0.0420	0.00840	<0.00500	0.150	0.00660	1.70	0.0480	0.120	1.20	<0.00500	0.0330	1.10	2.50	0.680

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B3	142B3	142BG	147B1	147B1	147B1	147B1	147B1	147B1	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		35	39	1	5	10	15	20	25	30	29	30	31	32	33	34	35
Date Collected:	Units	06/10/92	06/10/92	04/06/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93
Metals																	
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	2.40	1.70	<0.450	0.730	<0.520	<0.540 [<0.490]	2.10	2.10	1.20	NA	0.500	NA	0.760	NA	<0.510	NA
BARIUM	mg/kg	50.0	39.0	<92.0	<110	<100	<100 [<95.0]	<100	<21.0	22.0	NA	<98.0	NA	<100	NA	<96.0	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<0.500	<0.460	<2.30	<2.70	<2.60	<2.60 [<2.40]	<2.50	<0.530	<0.480	NA	<2.40	NA	<2.50	NA	<2.40	NA
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.90	NA	<5.00	NA	<4.80	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0100	NA	<0.0500	NA
LEAD	mg/kg	6.40	<4.60	<23.0	<27.0	<26.0	<26.0 [<24.0]	<25.0	<5.30	6.20	NA	<0.450	NA	0.870	NA	<0.510	NA
MERCURY	mg/kg	<0.0900	<0.0900	<0.0900	<0.100	<0.100	<0.0800 [<0.100]	<0.100	<0.0900	<0.0900	NA	<0.0200	NA	<0.0220	NA	<0.0220	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.490	<0.530	<0.450	<0.500	<0.520	<0.540 [<0.490]	<0.520	<0.480	<0.540	NA	<0.450	NA	<0.490	NA	<0.510	NA
SILVER	mg/kg	<0.990	<0.930	<4.60	<5.30	<5.30	<5.20 [<4.80]	<5.00	<1.00	<0.950	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																	
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																	
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	8,600	3,300	<13.0	21.0	<13.0	5,800 [5,200]	960	13,000	190	NA	NA	NA	NA	NA	NA	NA
PCBs																	
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B3	142B3	142BG	147B1	147B1	147B1	147B1	147B1	147B1	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		35	39	1	5	10	15	20	25	30	29	30	31	32	33	34	35
Date Collected:	Units	06/10/92	06/10/92	04/06/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<2.00	<2.00	<0.330	<0.300	<0.300	<2.00 [<2.00]	<0.300	<8.00	<0.300	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<1.70	<1.70	<8.30 [<8.30]	<1.70	<42.0	<1.70	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<2.00	<2.00	<0.330	<0.300	<0.300	<2.00 [<2.00]	<0.300	<8.00	<0.300	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.70	<1.70	<1.70	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	0.460	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B3	142B3	142BG	147B1	147B1	147B1	147B1	147B1	147B1	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		35	39	1	5	10	15	20	25	30	29	30	31	32	33	34	35
Date Collected:	Units	06/10/92	06/10/92	04/06/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	2.10	<0.300	<0.300	<0.300	<0.300	2.00 [<0.300]	0.460	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	8.30	5.30	<0.300	<0.300	<0.300	11.0 [7.80]	2.60	18.0	0.360	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																	
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0	NA	<14.0	NA	<14.0	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B3	142B3	142BG	147B1	147B1	147B1	147B1	147B1	147B1	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		35	39	1	5	10	15	20	25	30	29	30	31	32	33	34	35
Date Collected:	Units	06/10/92	06/10/92	04/06/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	8,600	3,300	<13.0	21.0	<13.0	5,800 [5,200]	960	13,000	190	NA	NA	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	0.180	0.0230	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	0.00930	NA	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHANE	mg/kg	0.0180	0.00690	<0.00500	<0.00500	<0.00500	<0.00500 [0.0330]	<0.00500	0.00950	<0.00500	<0.00500	NA	<0.00500	NA	0.0500	NA	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	NA	<0.100	NA	<0.100	NA	<0.100
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	2.30	<0.100	<0.100	<0.100	0.120 [0.600]	0.520	0.600	<0.100	<0.100	NA	<0.100	NA	<0.100	NA	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	0.110	0.0410	<0.00500	<0.00500	<0.00500	0.0160 [0.0140]	<0.00500	0.170	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00650 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	1.30	0.100	<0.00500	<0.00500	<0.00500	0.750 [1.50]	0.0460	4.10	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	0.0510
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	0.0380	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	8.60	5.30	<0.300	<0.300	<0.300	8.10 [4.30]	1.30	14.0	<0.300	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	142B3 35 06/10/92	142B3 39 06/10/92	142BG 1 04/06/92	147B1 5 06/08/92	147B1 10 06/08/92	147B1 15 06/08/92	147B1 20 06/08/92	147B1 25 06/08/92	147B1 30 06/08/92	CFW-01 29 05/03/93	CFW-01 30 05/03/93	CFW-01 31 05/03/93	CFW-01 32 05/03/93	CFW-01 33 05/03/93	CFW-01 34 05/03/93	CFW-01 35 05/03/93
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
Xylenes	mg/kg	7.00	0.170	<0.00500	<0.00500	<0.00500	0.110 [0.120]	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA	<0.00500	NA	0.00950

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02
Sample Depth(ft):		36	37	38	39	40	41	42	43	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93
Metals																	
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.10
ARSENIC	mg/kg	<0.490	NA	<0.490	NA	<0.490	NA	<0.490	NA	1.10	1.20	0.960	13.0	2.50	1.90	3.30	3.50
BARIUM	mg/kg	<98.0	NA	<98.0	NA	<98.0	NA	71.0	NA	<98.0	<100	<110	<99.0	61.0	43.0	<23.0	77.0
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.590
CADMIUM	mg/kg	<2.40	NA	<2.40	NA	<2.40	NA	<2.40	NA	<2.50	<2.70	<2.70	<2.40	<0.550	<0.570	<0.570	<0.590
Chromium	mg/kg	<4.90	NA	<4.90	NA	8.00	NA	7.70	NA	<4.90	<5.20	<5.30	9.90	6.40	6.10	4.80	4.60
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.90
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.00
Hexavalent Chromium	mg/kg	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
LEAD	mg/kg	<0.490	NA	<0.490	NA	3.70	NA	4.10	NA	<0.610	<0.640	<0.660	3.50	4.40	4.40	5.00	4.20
MERCURY	mg/kg	<0.0230	NA	<0.0230	NA	<0.0230	NA	<0.0230	NA	<0.0290	<0.0310	<0.0320	<0.0350	<0.0260	<0.0270	<0.0270	<0.0270
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.20
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.490	NA	<0.490	NA	<0.490	NA	<0.490	NA	<0.610	<0.640	<0.660	<0.620	<0.530	<0.570	<0.570	<0.600
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.600
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.0
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.180	<0.200	0.420	0.200	<0.170	<0.190	0.530	<0.200
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.0
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17.0
Other																	
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																	
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	75.9	70.9	69.9 [68.5]	73.9	87.1	80.7	81.3	77.3
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	91.0
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																	
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0670
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00300
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02
Sample Depth(ft):		36	37	38	39	40	41	42	43	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9.00
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<4.00	NA	<2.00	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<4.00	NA	<2.00	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	49.0	11.0	42.0	13.0	35.0	0.990
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	<0.0500	NA	<0.0500	NA	<0.500	NA	<0.0500	<0.0660	<0.0710	<0.0720 [<0.0730]	<0.0660	<0.0580	<0.0620	<0.0630	<0.0650
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	2.60	<2.00	<4.00	0.630	2.10	0.0800
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.650
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	1.30	<0.400
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.00
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	0.0450

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02
Sample Depth(ft):		36	37	38	39	40	41	42	43	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	5.30	<2.00	5.10	1.20	3.40	0.170
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	0.230	<0.400
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	5.20	<2.00	6.10	1.50	5.20	0.160
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9.00
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.00
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9.00
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<4.00	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.120
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	8.00	<2.00	9.40	2.80	7.00	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	12.0	3.60	18.0	4.70	12.0	0.380
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	0.640	<0.400
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900
TPHs																	
>C10-C28	mg/kg	8,700	NA	1,100	NA	3,900	NA	11,000	NA	<67.0	<71.0	2,100	1,000	8,300	890	3,800	1,600

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02
Sample Depth(ft):		36	37	38	39	40	41	42	43	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
1,1,1-Trichloroethane	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	0.0120	<0.00600
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
1,1,2-TRICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
1,1-DICHLOROETHANE	mg/kg	NA	0.0270	NA	0.0440	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	0.00720	<0.00600	<0.00600	<0.00600
1,1-DICHLOROETHYLENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
1,2-Dichloropropane	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.650
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	<0.100	NA	<0.100	NA	<1.00	NA	<0.100	<0.130	<0.140	<0.140 [<0.150]	<0.140	<0.120	<0.120	<0.130	<0.130
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.30
ACETONE	mg/kg	NA	<0.100	NA	<0.100	NA	<1.00	NA	<0.100	<0.130	<0.140	<0.140 [<0.150]	<0.140	<0.120	<0.120	0.130	0.260
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.650
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.130
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
BENZENE	mg/kg	NA	<0.00500	NA	0.00930	NA	0.150	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	0.0250	<0.00600	0.0100	<0.00600
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
BROMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.0130
CARBON DISULFIDE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.0130
CARBON TETRACHLORIDE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
CHLOROETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130
CHLOROFORM	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	NA
cis-1,3-Dichloropropene	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
DICHLOROMETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00
ETHYLBENZENE	mg/kg	NA	0.260	NA	0.380	NA	3.40	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	0.0320	0.530	0.0150	0.170	<0.00600
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
METHYL N-BUTYL KETONE	mg/kg	NA	<0.0500	NA	<0.0500	NA	<0.500	NA	<0.0500	<0.0660	<0.0710	<0.0720 [<0.0730]	<0.0660	<0.0580	<0.0620	<0.0630	<0.0650
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260
METHYLBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	7.90	<2.00	10.0	1.60	5.50	0.140
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-01 36 05/03/93	CFW-01 37 05/03/93	CFW-01 38 05/03/93	CFW-01 39 05/03/93	CFW-01 40 05/03/93	CFW-01 41 05/03/93	CFW-01 42 05/03/93	CFW-01 43 05/03/93	CFW-02 3 - 5 05/20/93	CFW-02 8 - 10 05/20/93	CFW-02 13 - 15 05/20/93	CFW-02 18 - 20 05/20/93	CFW-02 23 - 25 05/20/93	CFW-02 28 - 30 05/20/93	CFW-02 33 - 35 05/20/93	CFW-02 38 - 40 05/20/93
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.130
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
trans-1,3-Dichloropropene	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130
Vinyl Chloride	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130
Xylenes	mg/kg	NA	0.0250	NA	0.0500	NA	<0.0500	NA	<0.00500	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	0.00590	0.0140	0.0230	<0.00600

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04
Sample Depth(ft):		3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	1	2	3	4	5	6	7	8
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
Metals																	
ANTIMONY	mg/kg	NA	NA	NA	<7.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	<0.570	0.0630	<0.610	8.70	3.70	1.40	0.890	1.20	NA	<0.610	NA	<0.560	NA	2.10	NA	4.70
BARIUM	mg/kg	<93.0	<96.0	<95.0	1,000	110	<21.0	65.0	25.0	NA	<91.0	NA	<83.0	NA	<100	NA	45.0
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<2.30	<2.40	<2.40	<0.600	<2.30	<0.520	<0.480	<0.560	NA	<2.30	NA	<2.10	NA	<2.50	NA	<0.870
Chromium	mg/kg	<4.60	<7.30	<4.80	17.0	9.20	4.00	2.80	5.10	NA	<4.50	NA	<4.20	NA	<5.00	NA	9.60
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	16.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	<0.0130	NA	NA	NA	<0.0120	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500
LEAD	mg/kg	<0.570	<0.610	<0.610	13.0	4.00	2.90	2.20	3.30	NA	<0.610	NA	<0.560	NA	1.20	NA	5.30
MERCURY	mg/kg	<0.0280	<0.0280	<0.0280	<0.0300	<0.320	<0.0230	<0.0230	<0.0280	NA	<0.0240	NA	<0.0230	NA	<0.0200	NA	<0.0270
NICKEL	mg/kg	NA	NA	NA	19.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.570	<0.610	<0.610	<0.590	<0.590	<0.510	<0.480	<0.560	NA	<0.610	NA	<0.560	NA	<0.590	NA	<0.550
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	<0.590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	<12.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	<0.190	<0.170	<0.190	<0.200	<0.170	<0.160	<0.160	<0.150	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	45.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																	
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																	
% Solids	%	19.0	24.0	25.0	75.0	22.0	10.0	4.00	17.0	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	73.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	1,800	2,200	820	5,500	370	90.0	91.0	3,200	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																	
Aroclor 1221	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	<0.0670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	<0.0340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	<0.00300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04
Sample Depth(ft):		3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	1	2	3	4	5	6	7	8
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
1,2,4-TRICHLOROBENZENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	<44.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	<2.00	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	<0.400	<0.400	<0.500	18.0	1.20	<0.400	<0.400	40.0	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.800	<0.900	<0.900	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.800	<0.900	<0.900	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0620	<0.0660	<0.0670	<0.0670	<0.0660	<0.0560	<0.0520	<0.300	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	1.90	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	<0.670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.400	<0.400	<0.500	0.460	<0.400	<0.400	<0.400	0.870	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	<22.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	NA	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	<0.800	<0.900	<0.900	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04
Sample Depth(ft):		3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	1	2	3	4	5	6	7	8
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.400	<0.400	<0.500	1.90	<0.400	<0.400	<0.400	3.60	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.400	<0.400	<0.500	2.10	<0.400	<0.400	<0.400	4.10	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	<44.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	<22.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	<44.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	2.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	<0.400	<0.400	<0.500	NA	<0.400	<0.400	<0.400	6.00	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.800	<0.900	<0.900	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.400	<0.400	<0.500	4.70	0.490	<0.400	<0.400	12.0	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	<2.00	<2.00	<2.00	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.400	<0.400	<0.500	0.270	<0.400	<0.400	<0.400	0.500	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																	
>C10-C28	mg/kg	<13.0	<13.0	<13.0	4,100	2,200	<11.0	21.0	5,100	NA	<13.0	NA	35.0	NA	1,300	NA	1,500

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04
Sample Depth(ft):		3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	1	2	3	4	5	6	7	8
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	<0.0130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00600	<0.00700	<0.00700	0.550	0.0960	<0.00600	<0.00500	0.270	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1-DICHLOROETHANE	mg/kg	<0.00600	<0.00700	<0.00700	0.0150	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.00600	<0.00700	<0.00700	0.0480	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	<0.0130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,2-Dichloropropane	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	<0.670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.120	<0.130	<0.130	<0.130	<0.130	<0.110	<0.100	<0.600	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0120	<0.0130	<0.0130	NA	<0.0130	<0.0110	<0.0100	<0.0600	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	<1.30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.120	<0.130	<0.130	<0.130	<0.130	<0.110	<0.100	<0.600	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA
ACROLEIN	mg/kg	NA	NA	NA	<0.670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	<0.130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00600	<0.00700	<0.00700	0.0160	<0.00600	<0.00600	<0.00500	0.0750	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.400	<0.400	<0.500	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
BROMOMETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.0130	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CARBON DISULFIDE	mg/kg	<0.00600	<0.00700	<0.00700	<0.0130	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CARBON TETRACHLORIDE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CFC-11	mg/kg	NA	NA	NA	<0.0130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CHLOROETHANE	mg/kg	<0.0120	<0.0130	<0.0130	<0.0130	<0.0130	<0.0110	<0.0100	<0.0600	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
CHLOROFORM	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	<0.00600	<0.00700	<0.00700	NA	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
cis-1,3-Dichloropropene	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0120	<0.0130	<0.0130	0.0200	<0.0130	<0.0110	<0.0100	<0.0600	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	0.0490	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
Iodomethane	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0620	<0.0660	<0.0670	<0.0670	<0.0660	<0.0560	<0.0520	<0.300	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
MTBE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.400	<0.400	<0.500	3.10	<0.400	<0.400	<0.400	6.40	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-03 3 - 5 05/18/93	CFW-03 8 - 10 05/18/93	CFW-03 13 - 15 05/18/93	CFW-03 18 - 20 05/18/93	CFW-03 23 - 25 05/18/93	CFW-03 28 - 30 05/18/93	CFW-03 33 - 35 05/18/93	CFW-03 38 - 40 05/18/93	CFW-04 1 04/29/93	CFW-04 2 04/29/93	CFW-04 3 04/29/93	CFW-04 4 04/29/93	CFW-04 5 04/29/93	CFW-04 6 04/29/93	CFW-04 7 04/29/93	CFW-04 8 04/29/93
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	<0.130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
trans-1,3-Dichloropropene	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00600	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0120	<0.0130	<0.0130	<0.0130	<0.0130	<0.0110	<0.0100	<0.0600	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
Vinyl Chloride	mg/kg	<0.0120	<0.0130	<0.0130	<0.0130	<0.0130	<0.0110	<0.0100	<0.0600	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
Xylenes	mg/kg	<0.00600	<0.00700	<0.00700	1.10	0.180	<0.00600	<0.00500	1.30	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 9 04/29/93	CFW-04 10 04/29/93	CFW-04 11 04/29/93	CFW-04 12 04/29/93	CFW-04 13 04/29/93	CFW-04 14 04/29/93	CFW-04 15 04/29/93	CFW-04 16 04/29/93	CFW-04 17 04/29/93	CFW-04 18 04/29/93	CFW-04 19 04/29/93	CFW-04 20 04/29/93	CFW-04 21 04/29/93	CFW-04 22 04/29/93	CFW-04 23 04/29/93
Metals																
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	3.10	NA	1.00	NA	1.10	NA	2.00	NA	3.40	NA	5.00	NA	1.60 [1.60]	NA
BARIUM	mg/kg	NA	57.0	NA	27.0	NA	63.0	NA	39.0	NA	51.0	NA	120	NA	20.0 [20.0]	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	<0.440	NA	<0.440	NA	<0.420	NA	<0.400	NA	<0.380	NA	<0.450	NA	<0.410 [<0.410]	NA
Chromium	mg/kg	NA	4.50	NA	2.10	NA	2.50	NA	3.10	NA	5.70	NA	8.60	NA	2.80 [2.90]	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	<0.0100	NA	<0.0500	NA	<0.0500	NA	0.0520	NA	0.0610	NA	<0.0500	NA	<0.0100 [<0.0100]	NA
LEAD	mg/kg	NA	5.30	NA	2.30	NA	2.50	NA	3.00	NA	4.80	NA	7.70	NA	3.10 [3.00]	NA
MERCURY	mg/kg	NA	<0.210	NA	<0.0200	NA	<0.0260	NA	<0.0200	NA	<0.0220	NA	<0.0200	NA	<0.0210 [<0.0240]	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	<0.590	NA	<0.590	NA	<0.450	NA	<0.490	NA	<0.550	NA	<0.600	NA	<0.540 [<0.520]	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide																
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 9 04/29/93	CFW-04 10 04/29/93	CFW-04 11 04/29/93	CFW-04 12 04/29/93	CFW-04 13 04/29/93	CFW-04 14 04/29/93	CFW-04 15 04/29/93	CFW-04 16 04/29/93	CFW-04 17 04/29/93	CFW-04 18 04/29/93	CFW-04 19 04/29/93	CFW-04 20 04/29/93	CFW-04 21 04/29/93	CFW-04 22 04/29/93	CFW-04 23 04/29/93
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	NA	<0.0500	NA	<0.500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500 [<0.0500]	NA	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	CFW-04
Sample Depth(ft):		9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Date Collected:	Units	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																
>C10-C28	mg/kg	NA	19.0	NA	15.0	NA	28,000	NA	4,000	NA	<12.0	NA	<12.0	NA	18.0 [13.0]	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 9 04/29/93	CFW-04 10 04/29/93	CFW-04 11 04/29/93	CFW-04 12 04/29/93	CFW-04 13 04/29/93	CFW-04 14 04/29/93	CFW-04 15 04/29/93	CFW-04 16 04/29/93	CFW-04 17 04/29/93	CFW-04 18 04/29/93	CFW-04 19 04/29/93	CFW-04 20 04/29/93	CFW-04 21 04/29/93	CFW-04 22 04/29/93	CFW-04 23 04/29/93
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	NA	<0.100	NA	<1.00	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100 [<0.100]	NA	<0.100
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100 [<0.0100]	NA	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	NA	<0.100	NA	<1.00	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100 [<0.100]	NA	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	NA	<0.00500	NA	0.0870	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
BROMOMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
CHLOROETHANE	mg/kg	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100 [<0.0100]	NA	<0.0100
CHLOROFORM	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
cis-1,3-Dichloropropene	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100 [<0.0100]	NA	<0.0100
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	NA	<0.00500	NA	0.850	NA	0.210	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	NA	<0.0500	NA	<0.500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500 [<0.0500]	NA	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 9 04/29/93	CFW-04 10 04/29/93	CFW-04 11 04/29/93	CFW-04 12 04/29/93	CFW-04 13 04/29/93	CFW-04 14 04/29/93	CFW-04 15 04/29/93	CFW-04 16 04/29/93	CFW-04 17 04/29/93	CFW-04 18 04/29/93	CFW-04 19 04/29/93	CFW-04 20 04/29/93	CFW-04 21 04/29/93	CFW-04 22 04/29/93	CFW-04 23 04/29/93
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100 [<0.0100]	NA	<0.0100
Vinyl Chloride	mg/kg	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100 [<0.0100]	NA	<0.0100
Xylenes	mg/kg	0.00860	NA	<0.00500	NA	0.110	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500 [<0.00500]	NA	<0.00500

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-04	CFW-04	CFW-04	CFW-04	CFW-04	East Bore #3	East Bore #3	East Bore #3	East Bore #3	East Bore #3	East Bore #3	East Bore #3	HCF-01	HCF-01
Sample Depth(ft):		24	25	26	27	28	1	5	10	15	20	25	30	4 - 6	19 - 20
Date Collected:	Units	04/29/93	04/29/93	04/29/93	04/29/93	04/29/93	03/21/90	03/21/90	03/21/90	03/21/90	03/21/90	03/21/90	03/21/90	03/28/90	03/28/90
Metals															
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	5.00	NA	3.00	NA	2.40	53.0	43.0	25.0	25.0	28.0	20.0	15.0	NA	15.0
BARIUM	mg/kg	100	NA	50.0	NA	35.0	160	180	180	170	110	80.0	53.0	NA	3.00
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	0.440	NA	<0.440	NA	<0.380	1.20	1.50	1.50	1.20	0.800	<0.800	0.800	NA	2.00
Chromium	mg/kg	7.00	NA	7.00	NA	3.40	2.00	3.00	3.00	3.50	3.20	<2.00	6.50	NA	5.00
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	0.153	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	8.00	NA	6.80	NA	3.30	14.0	15.0	13.0	14.0	15.0	8.00	19.0	NA	17.0
MERCURY	mg/kg	<0.0230	NA	<0.0220	NA	<0.0220	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	<0.0200
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.620	NA	<0.620	NA	<0.570	45.0	95.0	78.0	58.0	48.0	35.0	48.0	NA	75.0
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other															
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters															
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs															
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide															
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs															
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 24 04/29/93	CFW-04 25 04/29/93	CFW-04 26 04/29/93	CFW-04 27 04/29/93	CFW-04 28 04/29/93	East Bore #3 1 03/21/90	East Bore #3 5 03/21/90	East Bore #3 10 03/21/90	East Bore #3 15 03/21/90	East Bore #3 20 03/21/90	East Bore #3 25 03/21/90	East Bore #3 30 03/21/90	HCF-01 4 - 6 03/28/90	HCF-01 19 - 20 03/28/90
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	<0.0500	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 24 04/29/93	CFW-04 25 04/29/93	CFW-04 26 04/29/93	CFW-04 27 04/29/93	CFW-04 28 04/29/93	East Bore #3 1 03/21/90	East Bore #3 5 03/21/90	East Bore #3 10 03/21/90	East Bore #3 15 03/21/90	East Bore #3 20 03/21/90	East Bore #3 25 03/21/90	East Bore #3 30 03/21/90	HCF-01 4 - 6 03/28/90	HCF-01 19 - 20 03/28/90
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs															
>C10-C28	mg/kg	<13.0	NA	<15.0	NA	<13.0	NA	NA	NA	NA	NA	NA	NA	2,600	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 24 04/29/93	CFW-04 25 04/29/93	CFW-04 26 04/29/93	CFW-04 27 04/29/93	CFW-04 28 04/29/93	East Bore #3 1 03/21/90	East Bore #3 5 03/21/90	East Bore #3 10 03/21/90	East Bore #3 15 03/21/90	East Bore #3 20 03/21/90	East Bore #3 25 03/21/90	East Bore #3 30 03/21/90	HCF-01 4 - 6 03/28/90	HCF-01 19 - 20 03/28/90
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs															
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	8.10	<0.625	<0.0250	<0.0250	NA	<0.625
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,1,2-TRICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,1-DICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<1.25	<1.25	0.0470	<0.0250	NA	<1.25
1,1-DICHLOROETHYLENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,2-DICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,2-Dichloropropane	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	<0.100	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA	<0.0500	<1.25	<1.25	<0.0500	<0.0500	NA	<1.25
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	<0.100	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
BROMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.0500	<1.25	<1.25	<0.0500	<0.0500	NA	<1.25
CARBON DISULFIDE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	3.90	<0.0250	<0.0250	NA	<0.625
CFC-11	mg/kg	NA	NA	NA	NA	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	<0.250	NA	<0.250	<0.250	<6.25	<0.250	<6.25	NA	<6.25
CHLOROBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
CHLOROETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA	<0.0500	<1.25	<1.25	<0.0500	<0.0500	NA	<1.25
CHLOROFORM	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA	<0.0500	<1.25	<1.25	<0.0500	<0.0500	NA	<1.25
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	<0.0500	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	CFW-04 24 04/29/93	CFW-04 25 04/29/93	CFW-04 26 04/29/93	CFW-04 27 04/29/93	CFW-04 28 04/29/93	East Bore #3 1 03/21/90	East Bore #3 5 03/21/90	East Bore #3 10 03/21/90	East Bore #3 15 03/21/90	East Bore #3 20 03/21/90	East Bore #3 25 03/21/90	East Bore #3 30 03/21/90	HCF-01 4 - 6 03/28/90	HCF-01 19 - 20 03/28/90
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
trans-1,3-Dichloropropene	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	<0.0250	NA	<0.0250	<0.625	<0.625	<0.0250	<0.0250	NA	<0.625
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA	<0.0500	<1.25	<1.25	<0.0500	<0.0500	NA	<1.25
Xylenes	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90	HLSF-SB-013 10 - 11 11/16/06	HLSF-SB-013 20 - 21 11/16/06	HLSF-SB-013 30 - 31 11/16/06	HLSF-SB-013 40 - 41 11/16/06	HLSF-SB-014 10 - 12 11/17/06	HLSF-SB-014 20 - 22 11/17/06	HLSF-SB-014 30 - 31 11/17/06	HLSF-SB-014 40 - 41 11/17/06	HLSF-SB-016 10 - 11 11/16/06
Metals													
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	18.0	35.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	mg/kg	NA	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	0.500	0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	2.00	1.00	2.82	5.39	2.30	<0.500	<1.00 [<1.00]	2.64	1.83	1.61	2.97
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	<5.00	<5.00	<5.00	<5.00	<5.00 [<5.00]	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	NA	14.0	4.00	3.99	13.9	6.55	4.74	<1.00 [<1.00]	5.11	7.74	5.30	4.36
MERCURY	mg/kg	NA	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	0.800	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	650	378	470	384	1,310 [950]	605	1,340	1,440	645
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	5.08	16.4	9.71	6.17	4.74 [6.71]	13.6	17.3	16.6	5.11
Other													
FOC	%	NA	NA	NA	6.47	5.95	0.986	1.42	5.55 [5.51]	2.33	1.40	1.05	5.40
Parameters													
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	61.1	105	119	80.8	49.6 [67.4]	126	193	173	65.2
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs													
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250

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Location ID: Sample Depth(ft): Date Collected:	Units	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90	HLSF-SB-013 10 - 11 11/16/06	HLSF-SB-013 20 - 21 11/16/06	HLSF-SB-013 30 - 31 11/16/06	HLSF-SB-013 40 - 41 11/16/06	HLSF-SB-014 10 - 12 11/17/06	HLSF-SB-014 20 - 22 11/17/06	HLSF-SB-014 30 - 31 11/17/06	HLSF-SB-014 40 - 41 11/17/06	HLSF-SB-016 10 - 11 11/16/06
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.250]	<1.00	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	1.26	<0.0100 [<0.0100]	0.968	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.320	<0.0100 [<0.0100]	0.506	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.250]	<0.200	<0.0100	<0.0100	<0.0100
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
1-Methylnaphthalene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	8.77	<0.250 [<0.250]	23.7	<0.250	0.327	<0.250
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-CHLOROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-Methyl pyridine	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	11.1	<0.250 [<0.250]	31.9	<0.250	<0.250	<0.250
2-Methylphenol	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-Naphthylamine	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-NITROANILINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
2-NITROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-Aminobiphenyl	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Acenaphthene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
ACENAPHTHYLENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Aniline	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
ANTHRACENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	2.00	<0.250 [<0.250]	5.83	<0.250	<0.250	<0.250
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Benzo(a)anthracene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Benzo(a)pyrene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
BENZOIC ACID	mg/kg	NA	NA	NA	<0.250	0.410	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
BENZYL ALCOHOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90	HLSF-SB-013 10 - 11 11/16/06	HLSF-SB-013 20 - 21 11/16/06	HLSF-SB-013 30 - 31 11/16/06	HLSF-SB-013 40 - 41 11/16/06	HLSF-SB-014 10 - 12 11/17/06	HLSF-SB-014 20 - 22 11/17/06	HLSF-SB-014 30 - 31 11/17/06	HLSF-SB-014 40 - 41 11/17/06	HLSF-SB-016 10 - 11 11/16/06
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.533	<0.0100 [<0.0100]	1.77	<0.0100	<0.0100	<0.0100
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
DIBENZOFURAN	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	0.994	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Di-n-butyl phthalate	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Di-n-octyl phthalate	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
DIPHENYLAMINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Diphenylhydrazine	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
FLUORENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	1.03	<0.250 [<0.250]	2.59	<0.250	<0.250	<0.250
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.250]	<1.00	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
HEXACHLOROETHANE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.250]	<0.200	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PHENACETIN	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PHENANTHRENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PHENOL	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
PYRENE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	0.732	<0.250	<0.250	<0.250
PYRIDINE	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs													
>C10-C28	mg/kg	5,200	11,000	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90	HLSF-SB-013 10 - 11 11/16/06	HLSF-SB-013 20 - 21 11/16/06	HLSF-SB-013 30 - 31 11/16/06	HLSF-SB-013 40 - 41 11/16/06	HLSF-SB-014 10 - 12 11/17/06	HLSF-SB-014 20 - 22 11/17/06	HLSF-SB-014 30 - 31 11/17/06	HLSF-SB-014 40 - 41 11/17/06	HLSF-SB-016 10 - 11 11/16/06
DRO	mg/kg	NA	NA	NA	<50.0	178	<50.0	3,180	<50.0 [<50.0]	3,570	62.7	67.1	<50.0
GRO	mg/kg	NA	NA	NA	<1.00	2.70	<1.00	171	<1.00 [<1.00]	335	<1.00	5.32	<1.00
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs													
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.250]	<0.200	<0.0100	<0.0100	<0.0100
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	<0.500	<0.500	<0.500	<10.0	<0.500 [<0.500]	<10.0	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	<0.100	<0.100	<0.100	<2.00	<0.100 [<0.100]	<2.00	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.250	<0.250	<0.250
BROMOBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	4.06	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	<0.200	<0.200	<0.200	<4.00	<0.200 [<0.200]	<4.00	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.346	<0.0100 [<0.0100]	3.10	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	<1.00	<0.0500 [<0.0500]	<1.00	<0.0500	<0.0500	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	NA	NA	NA	<0.0500	<0.0500	<0.0500	2.56	<0.0500 [<0.250]	8.72	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.925	<0.0100 [<0.0100]	5.28	<0.0100	<0.0100	<0.0100

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90	HLSF-SB-013 10 - 11 11/16/06	HLSF-SB-013 20 - 21 11/16/06	HLSF-SB-013 30 - 31 11/16/06	HLSF-SB-013 40 - 41 11/16/06	HLSF-SB-014 10 - 12 11/17/06	HLSF-SB-014 20 - 22 11/17/06	HLSF-SB-014 30 - 31 11/17/06	HLSF-SB-014 40 - 41 11/17/06	HLSF-SB-016 10 - 11 11/16/06
n-Propylbenzene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.555	<0.0100 [<0.0100]	5.27	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.936	<0.0100 [<0.0100]	5.57	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	<0.200	<0.200	<0.200	<4.00	<0.200 [<0.200]	<4.00	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	<0.100	<0.100	<0.100	<2.00	<0.100 [<0.100]	<2.00	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.200	<0.0100 [<0.0100]	<0.200	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-016 20 - 21 11/16/06	HLSF-SB-016 30 - 31 11/17/06	HLSF-SB-016 40 - 41 11/17/06	HLSF-SB-017 10 - 11 10/12/06	HLSF-SB-017 20 - 21 10/12/06	HLSF-SB-017 30 - 31 10/12/06	HLSF-SB-017 41 - 42 10/12/06	HLSF-SB-018 10 - 11 11/02/06	HLSF-SB-018 20 - 21 11/02/06	HLSF-SB-018 30 - 31 11/02/06	HLSF-SB-018 40 - 41 11/02/06	HLSF-SB-019 10 - 11 11/13/06
Metals													
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA
BARIUM	mg/kg	NA	NA	NA	32.9	44.5	65.7	46.9	NA	NA	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	<0.500	<0.500	0.604	0.914	NA	NA	NA	NA	NA
Chromium	mg/kg	8.08	<1.00	<1.00	2.84	5.41	9.17	13.3	7.42	12.9	10.1	11.2	2.70
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	2.21	3.56	3.92	7.17	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	17.5	4.36	5.00	<1.00	<1.00	6.82	11.0	3.40	19.2	9.76	12.5	2.90
MERCURY	mg/kg	NA	NA	NA	<0.0400	<0.0400	<0.0400	<0.0400	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	645	1,160	1,560	1,970	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA
SILVER	mg/kg	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA
SODIUM	mg/kg	1,360	2,030	1,640	232	381	456	298	414	500	730	710	567
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	24.4	14.0	16.4	13.5	18.4	22.8	34.4	3.64	19.9	18.2	21.2	4.42
Other													
FOC	%	5.22	1.56	1.35	2.08	2.36	1.20	1.17	2.68	0.731	0.580	0.700	6.07
Parameters													
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	3.18	0.346	0.214	2.25	NA	NA	NA	NA	2.01
Phosphorus	mg/kg	140	150	189	40.6	66.1	160	225	7.15	124	167	154	43.8
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs													
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-016 20 - 21 11/16/06	HLSF-SB-016 30 - 31 11/17/06	HLSF-SB-016 40 - 41 11/17/06	HLSF-SB-017 10 - 11 10/12/06	HLSF-SB-017 20 - 21 10/12/06	HLSF-SB-017 30 - 31 10/12/06	HLSF-SB-017 41 - 42 10/12/06	HLSF-SB-018 10 - 11 11/02/06	HLSF-SB-018 20 - 21 11/02/06	HLSF-SB-018 30 - 31 11/02/06	HLSF-SB-018 40 - 41 11/02/06	HLSF-SB-019 10 - 11 11/13/06
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.250	<0.250	<0.250	<0.250	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	0.0125	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.250	<0.250	<0.250	<0.250	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1-Methylnaphthalene	mg/kg	1.91	0.334	<0.250	<0.250	2.52	<0.250	<0.250	<0.250	15.2	<0.250	2.56	<0.250
1-NAPHTHYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,4,5-TRICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,4,6-Trichlorophenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,4-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,4-DIMETHYLPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,4-DINITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,4-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,6-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,6-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-CHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-Methyl pyridine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-METHYLNAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250	0.844	<0.250	<0.250	<0.250	9.76	<0.250	1.58	<0.250
2-Methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-Naphthylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
3,3'-DICHLOROBENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
3-METHYLCHLORANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-Aminobiphenyl	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-Chloro-3-methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
a,a-Dimethylphenethylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Acenaphthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	0.606	<0.250	<0.250	<0.250
ACENAPHTHYLENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Aniline	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
ANTHRACENE	mg/kg	0.543	<0.250	<0.250	<0.250	1.17	<0.250	<0.250	<0.250	3.45	<0.250	2.32	<0.250
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Benzo(a)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Benzo(a)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Benzo(b)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Benzo(g,h,i)perylene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Benzo(k)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
BENZOIC ACID	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
BENZYL BUTYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
bis (2-chloroethoxy) methane	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
bis(2-Chloroethyl) ether	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-016 20 - 21 11/16/06	HLSF-SB-016 30 - 31 11/17/06	HLSF-SB-016 40 - 41 11/17/06	HLSF-SB-017 10 - 11 10/12/06	HLSF-SB-017 20 - 21 10/12/06	HLSF-SB-017 30 - 31 10/12/06	HLSF-SB-017 41 - 42 10/12/06	HLSF-SB-018 10 - 11 11/02/06	HLSF-SB-018 20 - 21 11/02/06	HLSF-SB-018 30 - 31 11/02/06	HLSF-SB-018 40 - 41 11/02/06	HLSF-SB-019 10 - 11 11/13/06
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	0.209	<0.0100	0.187	<0.0100
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
DIBENZ[A,J]ACRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
DIBENZOFURAN	mg/kg	<0.250	<0.250	<0.250	<0.250	0.578	<0.250	<0.250	<0.250	1.30	<0.250	<0.250	<0.250
DIETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
DIMETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Di-n-butyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Di-n-octyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
DIPHENYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	0.271	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Diphenylhydrazine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
FLUORENE	mg/kg	<0.250	<0.250	<0.250	<0.250	0.505	<0.250	<0.250	<0.250	1.56	<0.250	<0.250	<0.250
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.250	<0.250	<0.250	<0.250	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
HEXACHLOROETHANE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.250	<0.250	<0.250	<0.250	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
n-Nitrosodi-n-propylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PENTACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PENTACHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PHENACETIN	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PHENANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PYRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
PYRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs													
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-016 20 - 21 11/16/06	HLSF-SB-016 30 - 31 11/17/06	HLSF-SB-016 40 - 41 11/17/06	HLSF-SB-017 10 - 11 10/12/06	HLSF-SB-017 20 - 21 10/12/06	HLSF-SB-017 30 - 31 10/12/06	HLSF-SB-017 41 - 42 10/12/06	HLSF-SB-018 10 - 11 11/02/06	HLSF-SB-018 20 - 21 11/02/06	HLSF-SB-018 30 - 31 11/02/06	HLSF-SB-018 40 - 41 11/02/06	HLSF-SB-019 10 - 11 11/13/06
DRO	mg/kg	166	110	<50.0	<50.0	112	<50.0	<50.0	<50.0	1,840	<50.0	1,910	<50.0
GRO	mg/kg	26.2	1.12	<1.00	<1.00	10.0	2.77	<1.00	<1.00	65.7	<1.00	70.9	<1.00
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs													
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.250	<0.250	<0.250	<0.250	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500	<10.0	<0.500	<0.500	<0.500	<10.0	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<2.00	<0.100	<0.100	<0.100	<2.00	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	0.723	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200	<4.00	<0.200	<0.200	<0.200	<4.00	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	0.0424	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	0.536	<0.0100	0.0677	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<0.0500	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	0.425	0.0648	<0.0500	<0.250	0.376	<0.250	<0.250	<0.0500	3.06	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	0.163	0.0123	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	0.962	<0.0100	0.261	<0.0100

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-016 20 - 21 11/16/06	HLSF-SB-016 30 - 31 11/17/06	HLSF-SB-016 40 - 41 11/17/06	HLSF-SB-017 10 - 11 10/12/06	HLSF-SB-017 20 - 21 10/12/06	HLSF-SB-017 30 - 31 10/12/06	HLSF-SB-017 41 - 42 10/12/06	HLSF-SB-018 10 - 11 11/02/06	HLSF-SB-018 20 - 21 11/02/06	HLSF-SB-018 30 - 31 11/02/06	HLSF-SB-018 40 - 41 11/02/06	HLSF-SB-019 10 - 11 11/13/06
n-Propylbenzene	mg/kg	0.0410	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	0.942	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	0.123	0.0132	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	1.04	<0.0100	0.485	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200	<4.00	<0.200	<0.200	<0.200	<4.00	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<2.00	<0.100	<0.100	<0.100	<2.00	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-019 20 - 22 11/13/06	HLSF-SB-019 30 - 31 11/13/06	HLSF-SB-019 36 - 37 11/13/06	HLSF-SB-019 40 - 41 11/13/06	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	North Bore #4 14 03/23/90	North Bore #4 16 03/23/90	North Bore #4 20 03/24/90	North Bore #4 25 03/24/90
Metals												
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	NA	NA	NA	13.0	14.0	18.0	NA	21.0	23.0	15.0
BARIUM	mg/kg	NA	NA	NA	NA	330	130	250	NA	250	60.0	8.00
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	1.80	2.00	2.50	NA	2.00	2.00	0.500
Chromium	mg/kg	8.13 [13.0]	4.30	NA	4.67	4.80	4.80	5.00	NA	3.80	8.00	5.00
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00 [<5.00]	<5.00	NA	<5.00	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	16.3 [26.3]	7.61	NA	8.21	18.0	20.0	23.0	NA	23.0	18.0	7.00
MERCURY	mg/kg	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	NA	<0.0200	<0.0200	<0.0200
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	23.0	3.00	33.0	NA	33.0	2.30	4.00
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	816 [1,540]	920	NA	766	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	22.1 [46.7]	14.5	NA	14.2	NA	NA	NA	NA	NA	NA	NA
Other												
FOC	%	4.21 [5.27]	0.901	NA	2.98	NA	NA	NA	NA	NA	NA	NA
Parameters												
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	0.415 [<0.100]	0.156	NA	2.00	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	173 [270]	168	NA	207	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs												
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide												
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs												
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-019 20 - 22 11/13/06	HLSF-SB-019 30 - 31 11/13/06	HLSF-SB-019 36 - 37 11/13/06	HLSF-SB-019 40 - 41 11/13/06	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	North Bore #4 14 03/23/90	North Bore #4 16 03/23/90	North Bore #4 20 03/24/90	North Bore #4 25 03/24/90
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100 [<0.0100]	1.62	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	<0.0100 [<0.0100]	0.736	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	9.10 [4.60]	17.2	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	0.698 [<0.250]	8.25	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	0.400 [<0.250]	1.12	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	2.63 [1.72]	6.16	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-019 20 - 22 11/13/06	HLSF-SB-019 30 - 31 11/13/06	HLSF-SB-019 36 - 37 11/13/06	HLSF-SB-019 40 - 41 11/13/06	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	North Bore #4 14 03/23/90	North Bore #4 16 03/23/90	North Bore #4 20 03/24/90	North Bore #4 25 03/24/90
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100 [<0.0100]	0.362	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	1.17 [0.776]	2.44	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	0.578 [0.369]	1.63	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	1.03 [<0.250]	2.74	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.250 [<0.250]	0.682	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs												
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-019 20 - 22 11/13/06	HLSF-SB-019 30 - 31 11/13/06	HLSF-SB-019 36 - 37 11/13/06	HLSF-SB-019 40 - 41 11/13/06	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	North Bore #4 14 03/23/90	North Bore #4 16 03/23/90	North Bore #4 20 03/24/90	North Bore #4 25 03/24/90
DRO	mg/kg	953 [369]	9,800	3,360	<50.0	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	63.8 [42.5]	102	106	<1.00	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs												
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	4.60	3.60	6.10
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,1-DICHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<1.25	<1.25	<1.25	<1.25	<1.25
1,1-DICHLOROETHYLENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,1-Dichloropropene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,2-DICHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,2-Dichloropropane	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
1,3-DICHLOROPROPANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	<0.500 [<0.500]	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<1.25	<1.25	<1.25	<1.25	<1.25
2-CHLOROTOLUENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.250 [<0.250]	<0.250	NA	<0.250	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
BROMOMETHANE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<1.25	<1.25	<1.25	<1.25	<1.25
CARBON DISULFIDE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
CFC-11	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
CFC-12	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	<0.250	<0.250	<6.25	<6.25	<6.25	<6.25	<6.25
CHLOROBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
CHLOROBROMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0500	<0.0500	<1.25	<1.25	<1.25	<1.25	<1.25
CHLOROFORM	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<1.25	<0.625	<0.625
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<1.25	<1.25	<1.25	<1.25	<1.25
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	0.124 [0.212]	0.0302	0.0247	<0.0100	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	<0.0100 [<0.0100]	0.0149	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
MTBE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.0500 [0.685]	<0.0500	1.56	<0.0500	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	0.347 [0.750]	0.367	0.763	<0.0100	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-019 20 - 22 11/13/06	HLSF-SB-019 30 - 31 11/13/06	HLSF-SB-019 36 - 37 11/13/06	HLSF-SB-019 40 - 41 11/13/06	North Bore #4 1 03/23/90	North Bore #4 6 03/23/90	North Bore #4 10 03/23/90	North Bore #4 14 03/23/90	North Bore #4 16 03/23/90	North Bore #4 20 03/24/90	North Bore #4 25 03/24/90
n-Propylbenzene	mg/kg	0.141 [0.252]	0.0261	0.0373	<0.0100	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	<0.0100 [<0.0100]	0.0311	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	0.316 [0.670]	0.554	0.466	<0.0100	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
trans-1,3-Dichloropropene	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0250	<0.0250	<0.625	<0.625	<0.625	<0.625	<0.625
TRICHLOROETHYLENE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0500	<0.0500	<1.25	<1.25	<1.25	<1.25	<1.25
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	North Bore #4 30 03/24/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	South Bore #2 15 03/19/90	South Bore #2 20 03/19/90	South Bore #2 26 03/19/90	South Bore #2 30 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90
Metals												
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	<13.0	NA	13.0	15.0	15.0	13.0	18.0	15.0	15.0	20.0	15.0
BARIUM	mg/kg	3.00	NA	130	160	180	170	53.0	79.0	38.0	120	120
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	0.500	NA	1.50	1.20	4.00	1.80	1.20	1.00	<0.800	1.00	1.50
Chromium	mg/kg	4.00	NA	4.50	3.00	6.50	2.80	3.30	3.00	5.50	2.80	3.80
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	7.00	NA	16.0	19.0	14.0	14.0	19.0	11.0	11.0	10.0	12.0
MERCURY	mg/kg	<0.0200	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	1.80	NA	73.0	45.0	68.0	35.0	53.0	33.0	20.0	53.0	73.0
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other												
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters												
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs												
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide												
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs												
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	North Bore #4 30 03/24/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	South Bore #2 15 03/19/90	South Bore #2 20 03/19/90	South Bore #2 26 03/19/90	South Bore #2 30 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<1.25	<1.25
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	North Bore #4 30 03/24/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	South Bore #2 15 03/19/90	South Bore #2 20 03/19/90	South Bore #2 26 03/19/90	South Bore #2 30 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs												
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	North Bore #4 30 03/24/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	South Bore #2 15 03/19/90	South Bore #2 20 03/19/90	South Bore #2 26 03/19/90	South Bore #2 30 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs												
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	2.00	1.20	0.0550	NA	0.0700	21.0	NA	<1.25	<1.25	<0.625	<0.625
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
1,1,2-TRICHLOROETHANE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
1,1-DICHLOROETHANE	mg/kg	<1.25	1.40	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
1,1-DICHLOROETHYLENE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<1.25	NA	<1.25	<0.625	<0.625	<0.625
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<1.25	<1.25
1,2-DICHLOROETHANE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
1,2-Dichloropropane	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<1.25	NA	<1.25	<1.25	<0.625	<0.625
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	NA	<1.25	<1.25	<1.25	<1.25
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
BROMOMETHANE	mg/kg	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	NA	<1.25	<1.25	<1.25	<1.25
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
CFC-11	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<1.25	<1.25
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	<6.25	<6.25	<0.250	NA	<0.250	12.5	NA	<6.25	<6.25	<6.25	<6.25
CHLOROBENZENE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
CHLOROETHANE	mg/kg	<1.25	<0.500	<0.0500	NA	<0.0500	<0.625	NA	<0.625	<1.25	<1.25	<1.25
CHLOROFORM	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	NA	<1.25	<1.25	<1.25	<1.25
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	North Bore #4 30 03/24/90	South Bore #2 0 03/23/90	South Bore #2 1 03/19/90	South Bore #2 5 03/19/90	South Bore #2 10 03/19/90	South Bore #2 15 03/19/90	South Bore #2 20 03/19/90	South Bore #2 26 03/19/90	South Bore #2 30 03/19/90	West Bore #1 1.5 03/16/90	West Bore #1 5 03/16/90
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
trans-1,3-Dichloropropene	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.625	<0.250	<0.0250	NA	<0.0250	<0.625	NA	<0.625	<0.625	<0.625	<0.625
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<1.25	<0.500	<0.0500	NA	<0.0500	<1.25	NA	<1.25	<1.25	<1.25	<1.25
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	West Bore #1 10 03/16/90	West Bore #1 11 03/16/90	West Bore #1 15 03/16/90	West Bore #1 20 03/16/90	West Bore #1 25.5 03/16/90	West Bore #1 30 03/16/90
Metals							
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	15.0	18.0	30.0	20.0	20.0	13.0
BARIUM	mg/kg	130	110	110	150	140	99.0
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	1.80	2.00	1.30	1.30	1.80	<0.800
Chromium	mg/kg	8.50	5.00	5.30	6.80	6.80	4.30
COBALT	mg/kg	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	13.0	19.0	21.0	19.0	20.0	6.50
MERCURY	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	63.0	78.0	65.0	73.0	75.0	45.0
SILVER	mg/kg	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA
Other							
FOC	%	NA	NA	NA	NA	NA	NA
Parameters							
% Solids	%	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA
PCBs							
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide							
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/kg	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/kg	NA	NA	NA	NA	NA	NA
2,4-D	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/kg	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA
SVOCs							
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	West Bore #1 10 03/16/90	West Bore #1 11 03/16/90	West Bore #1 15 03/16/90	West Bore #1 20 03/16/90	West Bore #1 25.5 03/16/90	West Bore #1 30 03/16/90
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<1.25	<1.25	<0.0250	<0.0250	<1.25	<1.25
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	West Bore #1 10 03/16/90	West Bore #1 11 03/16/90	West Bore #1 15 03/16/90	West Bore #1 20 03/16/90	West Bore #1 25.5 03/16/90	West Bore #1 30 03/16/90
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA
TPHs							
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	West Bore #1 10 03/16/90	West Bore #1 11 03/16/90	West Bore #1 15 03/16/90	West Bore #1 20 03/16/90	West Bore #1 25.5 03/16/90	West Bore #1 30 03/16/90
DRO	mg/kg	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA
VOCs							
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.625	<0.625	<0.0250	0.190	0.925	<0.625
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
1,1,2-TRICHLOROETHANE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
1,1-DICHLOROETHANE	mg/kg	<0.625	<0.625	<0.0250	0.0550	<0.625	<0.625
1,1-DICHLOROETHYLENE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	<1.25	<1.25	<0.0250	<0.0250	<1.25	<1.25
1,2-DICHLOROETHANE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
1,2-Dichloropropane	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<1.25	<1.25	<0.0500	<0.0500	<1.25	<1.25
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
BROMOMETHANE	mg/kg	<1.25	<1.25	<0.0500	<0.0500	<1.25	<1.25
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
CFC-11	mg/kg	<1.25	<1.25	<0.0250	<0.0250	<1.25	<1.25
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	<6.25	<6.25	<0.250	<0.250	<6.25	<6.25
CHLOROBENZENE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
CHLOROETHANE	mg/kg	<1.25	<1.25	<0.0500	<0.0500	<1.25	<1.25
CHLOROFORM	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<1.25	<1.25	<0.0500	<0.0500	<1.25	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	West Bore #1 10 03/16/90	West Bore #1 11 03/16/90	West Bore #1 15 03/16/90	West Bore #1 20 03/16/90	West Bore #1 25.5 03/16/90	West Bore #1 30 03/16/90
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
trans-1,3-Dichloropropene	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.625	<0.625	<0.0250	<0.0250	<0.625	<0.625
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<1.25	<1.25	<0.0500	<0.0500	<1.25	<1.25
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA

Table E.9.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	CFW-04 05/18/05	CFW-04 08/23/05	CFW-04 03/10/06	CFW-04 10/09/07	HCF-01 03/08/04	HCF-01 08/11/04
Explosives											
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
2-Amino-4,6-Dinitrotoluene	mg/L	<0.000500	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	0.0124	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	<0.000500	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
4-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
RDX	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Metals											
ALUMINUM	mg/L	<0.0300	<0.0300	NA	NA	<0.0300	0.0430	<0.0300	NA	<0.100	<0.100
ANTIMONY	mg/L	NA	NA	NA	<0.0500	NA	NA	NA	<0.0500	NA	NA
ARSENIC	mg/L	<0.0100	<0.00500	NA	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500
BARIUM	mg/L	0.0140	<0.0100	NA	0.0200	0.0110	<0.0100	0.0100	0.0120	<0.100	0.0290
BERYLLIUM	mg/L	<0.00250	<0.00250	NA	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
BORON	mg/L	6.35	7.68	NA	NA	5.12	6.08	6.02	NA	5.98	6.14
CADMIUM	mg/L	<0.00100	<0.00100	NA	<0.00200	<0.00100	<0.00100	<0.00100	<0.00200	<0.00500	<0.00100
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	380	NA	NA	NA
Chromium	mg/L	0.0410	0.0800	NA	0.0140	0.0460	0.0140	<0.0100	0.00600	<0.0100	0.00600
COBALT	mg/L	<0.0200	<0.00500	NA	<0.00500	<0.0200	<0.00500	<0.00500	<0.00500	<0.0200	<0.00500
COPPER	mg/L	0.0190	<0.00500	NA	<0.00500	0.0520	<0.00500	<0.00500	<0.00500	<0.0125	0.0450
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	<0.0100	<0.0100	NA	NA	<0.0100	<0.0100	NA	NA	0.0340	<0.0100
Iron	mg/L	1.06	0.0610	NA	NA	0.121	0.163	0.0410	NA	0.179	0.537
LEAD	mg/L	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	0.291	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	430	NA	NA	NA
MANGANESE	mg/L	0.508	0.241	NA	NA	0.204	<0.0250	0.138	NA	0.452	0.967
MERCURY	mg/L	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.0640	<0.0500	NA	NA	0.180	0.181	0.186	NA	0.329	0.526
NICKEL	mg/L	0.109	0.200	NA	0.0350	0.0140	<0.00500	0.0180	0.00500	<0.0250	0.0200
POTASSIUM	mg/L	NA	NA	NA	NA	NA	NA	109	NA	NA	NA
SELENIUM	mg/L	<0.0100	<0.0100	NA	<0.0200	<0.0100	<0.0100	<0.0100	<0.0200	<0.0500	<0.0100
SILVER	mg/L	<0.00200	<0.00200	NA	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.0125	<0.00300
SODIUM	mg/L	NA	NA	NA	NA	NA	NA	1,420	NA	NA	NA
STRONTIUM	mg/L	15.8	5.90	NA	NA	15.6	7.82	9.14	NA	5.08	5.48
THALLIUM	mg/L	NA	NA	NA	<0.0500	NA	NA	NA	<0.0500	NA	NA
TIN	mg/L	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Total Cyanide	mg/L	NA	NA	NA	<0.0100	NA	NA	<0.0100	<0.0100	NA	NA
VANADIUM (FUME OR DUST)	mg/L	<0.0250	<0.00500	NA	0.0160	0.0330	0.0250	0.0240	0.0280	<0.0250	0.0300
ZINC	mg/L	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.0100	<0.0250	0.0130
Metals-Dissolved											
Aluminum, Dissolved	mg/L	<0.0500	<0.0300	NA	NA	<0.0500	<0.0300	<0.0300	NA	<0.0500	<0.0500
Arsenic, Dissolved	mg/L	<0.0100	<0.00500	NA	NA	<0.0100	<0.00500	<0.00500	NA	<0.0100	<0.00500
Barium, Dissolved	mg/L	0.0140	0.0180	NA	NA	0.0110	<0.0100	<0.0100	NA	<0.100	0.0250
Beryllium, Dissolved	mg/L	<0.00250	<0.00250	NA	NA	<0.00250	<0.00250	<0.00250	NA	<0.00250	0.00400
Boron, Dissolved	mg/L	6.24	7.68	NA	NA	4.89	5.85	5.94	NA	5.96	6.40

Table E.9.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	CFW-04 05/18/05	CFW-04 08/23/05	CFW-04 03/10/06	CFW-04 10/09/07	HCF-01 03/08/04	HCF-01 08/11/04
Cadmium, Dissolved	mg/L	<0.00100	<0.00100	NA	NA	<0.00100	<0.00100	<0.00100	NA	<0.0250	<0.00100
Calcium, Dissolved	mg/L	372	278	NA	NA	451	439	361	NA	259	311
Chromium, Dissolved	mg/L	0.0390	<0.00500	NA	NA	0.0410	<0.00500	<0.00500	NA	<0.0100	<0.00500
Cobalt, Dissolved	mg/L	<0.0250	<0.00500	NA	NA	<0.0250	<0.00500	<0.00500	NA	<0.0250	<0.00500
Copper, Dissolved	mg/L	0.0180	<0.0125	NA	NA	0.0500	<0.0125	<0.0125	NA	<0.0125	<0.0125
Iron, Dissolved	mg/L	0.0210	0.0500	NA	NA	<0.0100	<0.0100	<0.0100	NA	0.111	0.196
Lead, Dissolved	mg/L	<0.0100	<0.00500	NA	NA	<0.0100	<0.00500	<0.00500	NA	<0.0100	<0.00500
Lithium, Dissolved	mg/L	0.450	0.364	NA	NA	0.513	0.422	0.277	NA	0.360	NA
Magnesium, Dissolved	mg/L	363	398	NA	NA	467	464	412	NA	275	349
Manganese, Dissolved	mg/L	0.503	0.216	NA	NA	0.202	<0.0250	0.131	NA	0.428	0.929
Molybdenum, Dissolved	mg/L	0.0570	<0.0500	NA	NA	0.178	0.158	0.184	NA	0.309	0.443
Nickel, Dissolved	mg/L	0.105	0.132	NA	NA	<0.0250	<0.00500	0.0180	NA	<0.0250	0.0140
Potassium, Dissolved	mg/L	97.9	88.1	NA	NA	135	127	107	NA	85.7	108
Selenium, Dissolved	mg/L	<0.0500	<0.0100	NA	NA	<0.0500	<0.0100	<0.0100	NA	<0.0500	<0.0100
Silver, Dissolved	mg/L	<0.0130	<0.00200	NA	NA	<0.0130	<0.00200	<0.00200	NA	<0.0130	<0.00300
Sodium, Dissolved	mg/L	1,190	1,440	NA	NA	1,590	1,610	1,420	NA	1,430	1,880
Strontium, Dissolved	mg/L	14.3	5.58	NA	NA	14.4	6.82	8.68	NA	4.95	5.20
Tin, Dissolved	mg/L	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	<0.0250	0.0240	NA	NA	0.0330	0.0240	0.0230	NA	<0.0250	0.0240
Zinc, Dissolved	mg/L	<0.0250	0.0100	NA	NA	<0.0250	<0.00500	<0.0100	NA	<0.0250	0.0100
Parameters											
ALKALINITY	mg/L	1,070	1,520	NA	1,330	434	466	460	512	344	284
Alkalinity, Bicarbonate	mg/L	1,070	1,520	NA	1,330	434	466	460	512	344	284
Alkalinity, Carbonate	mg/L	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	<1.00	NA	NA	<1.00	<1.00	<1.00	NA	<1.00	<1.00
Bromide	mg/L	0.690	<0.200	NA	0.770	0.730	<0.200	0.720	0.730	<0.200	<0.200
Chloride (CL)	mg/L	617	543	NA	593	721	713	697	618	559	558
CONDUCTIVITY	mS/cm	10.1	8.10	8.32	7.80	10.7	9.56	9.60	7.84	9.14	9.87
CONDUCTIVITY	umhos/cm	8,930	8,280	NA	9,020	9,960	9,950	10,200	9,480	9,620	9,060
FLUORIDE	mg/L	2.07	1.59	NA	1.98	3.23	3.17	3.20	3.10	3.97	3.95
Hydroxide Alkalinity	mg/L	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	4.21	2.22	NA	NA	8.46	7.07	9.81	NA	8.97	15.4
Nitrate + Nitrite	mg/L	NA	NA	NA	1.13	NA	NA	NA	1.42	NA	NA
Nitrite	mg/L	<0.100	<0.100	NA	NA	<0.100	<0.100	<0.100	NA	<0.100	<0.100
PERCHLORATE	mg/L	NA	NA	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA
pH	pH Units	7.37	7.51	6.94	6.96	7.38	7.26	7.22	7.03	7.47	7.29
Phosphorus	mg/L	<0.0500	0.0550	NA	NA	<0.0500	0.112	<0.0500	NA	<0.0500	<0.0500
SILICA	mg/L	46.5	29.8	NA	NA	35.8	42.7	29.6	NA	36.8	31.0
Silica, Dissolved	mg/L	43.1	51.3	NA	NA	34.7	40.4	27.8	NA	35.0	37.8
Sulfate	mg/L	3,710	2,960	NA	4,040	4,800	5,260	5,250	4,790	4,380	4,820
Temperature	deg c	24.3	27.2	22.9	24.0	25.2	26.0	20.5	23.0	24.4	23.8
TKN	mg/L	4.48	<4.00	NA	NA	<4.00	<4.00	<4.00	NA	<4.00	<4.00
Total Dissolved Solids	mg/L	7,760	6,680	NA	8,300	8,780	8,880	9,440	8,680	8,260	8,730
TOTAL ORGANIC CARBON	mg/L	NA	4.58	8.20	23.4	NA	4.98	<1.00	4.90	4.37	2.87
SVOCs											
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	NA	0.00119	<0.00100	<0.00100	0.00203	<0.00100	<0.00100	<0.00100

Table E.9.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	CFW-04 05/18/05	CFW-04 08/23/05	CFW-04 03/10/06	CFW-04 10/09/07	HCF-01 03/08/04	HCF-01 08/11/04
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	NA	<0.00100	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
1-Methylnaphthalene	mg/L	<0.00500	<0.00500	NA	0.280	0.0369	<0.00500	<0.00500	<0.00500	0.0733	0.0816
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2,4,6-Trichlorophenol	mg/L	<0.00500	<0.0100	NA	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<5.00	<5.00
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2,6-DICHLOROPHENOL	mg/L	<0.00500	<0.0100	NA	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<5.00	<5.00
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-Methyl pyridine	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	NA	0.178	0.0219	<0.00500	<0.00500	<0.00500	0.0839	0.0917
2-Methylphenol	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-Naphthylamine	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-NITROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
2-NITROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
3-Methylphenol	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	<5.00	NA
3-NITROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
4-Methyl Phenol	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	<5.00	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00	<5.00
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Acenaphthene	mg/L	<0.00500	<0.00500	NA	0.0710	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
ACETOPHENONE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Aniline	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
ANTHRACENE	mg/L	<0.00500	<0.00500	NA	0.184	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
BENZIDINE	mg/L	<0.0100	<0.0250	NA	<0.0250	<0.0100	<0.0250	<0.0250	<0.0250	<15.0	<15.0
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00

Table E.9.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	CFW-04 05/18/05	CFW-04 08/23/05	CFW-04 03/10/06	CFW-04 10/09/07	HCF-01 03/08/04	HCF-01 08/11/04
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
BENZOIC ACID	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.0100	<0.0500	NA	<0.00500	<0.0100	<0.0500	<0.00500	<0.00500	<10.0	<10.0
CHLOROPHENOLS	mg/L	<0.00500	<0.0100	NA	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<5.00	<5.00
CYMENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
DIBENZOFURAN	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00779	0.00871
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Diphenylhydrazine	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
FLUORANTHENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
FLUORENE	mg/L	<0.00500	<0.00500	NA	0.0874	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
m,p-Cresol	mg/L	NA	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00
M-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	NA	<0.00100	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
NITROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500	<5.00	<5.00
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00287
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PENTACHLOROPHENOL	mg/L	<0.00500	<0.0100	NA	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<5.00	<5.00
PHENACETIN	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PHENANTHRENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00717	0.0113
PHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
P-NITROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PROPYZAMIDE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PYRENE	mg/L	<0.00500	<0.00500	NA	0.0418	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
PYRIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
TPHs											

Table E.9.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	CFW-04 05/18/05	CFW-04 08/23/05	CFW-04 03/10/06	CFW-04 10/09/07	HCF-01 03/08/04	HCF-01 08/11/04
DRO	mg/L	<50.0	<50.0	NA	338	<50.0	<50.0	<50.0	<5.00	<50.0	16.2
GRO	mg/L	<0.100	<0.100	NA	0.414	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs											
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	0.0124	0.00464	NA	0.0234	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00200	<0.00200	NA	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	NA	<0.00100	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	0.00101	<0.00100	<0.00100	0.00118	0.00292	0.00152
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00
BROMOBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	0.00342	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Isopropylbenzene	mg/L	<0.00100	<0.00100	NA	0.00164	0.00151	0.00109	0.00188	0.00133	0.00631	0.00668
m,p-Xylene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
METHYL N-BUTYL KETONE	mg/L	<0.00100	<0.00100	NA	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500

Table E.9.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 142
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	CFW-04 05/18/05	CFW-04 08/23/05	CFW-04 03/10/06	CFW-04 10/09/07	HCF-01 03/08/04	HCF-01 08/11/04
METHYLBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	0.00305	0.00394	NA	0.00148	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	NA	0.00776	<0.00500	<0.00500	0.00672	<0.00500	0.0703	0.0324
n-Butylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00125	0.00168
n-Propylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	NA	0.00172	0.00104	<0.00100	0.00112	<0.00100	0.00486	0.00615
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
tert-Butylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Notes for E.10.Attachments 1-4
Risk Assessment Datasets
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

%	=	Percentage.
<	=	Result is non-detect.
[ ]	=	Indicates field duplicate result.
deg c	=	Degrees Celsius
J	=	Laboratory qualifier, indicates estimated result.
ft	=	Foot.
mg/kg	=	Milligrams per kilogram.
mg/L	=	Milligrams per liter.
umhos/cm	=	micromhos per centimeter
mS/cm	=	microSiemens per centimeter
NA	=	Not available.
PCB	=	Polychlorinated biphenyl.
SVOC	=	Semi-volatile Organic Compound.
VOC	=	Volatile Organic Compound.

Table E.10.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB01 0 11/30/93	0143SB02 0 11/03/93	0143SB03 0 11/30/93	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	HMW-43 1 11/17/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-07 1 11/29/93
Metals										
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	8.56	3.51	<3.12
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	73	97.8	47.4
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	<1.12	<3.06	<6.23
Chromium	mg/kg	<1.19 J	<5.92	<5.75	<5.97	<6.26	<13.5	6.4	<15.3	<31.2
Hexavalent Chromium	mg/kg	<5.96	<1.18	<1.15	<1.19	<1.25	<1.08	NA	<1.22	<1.25
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	<2.80	6	3.65
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	0.0258	<0.0244	0.0474
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	<2.80	<3.06	<3.12
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	10.8	<15.3	<31.2
Parameters										
TPH	mg/kg	NA	NA	NA	NA	NA	NA	<33.6	<36.6	<37.3
SVOCs										
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	<0.0224	<0.0244	<0.0249
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.403	<0.411
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411

Table E.10.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB01 0 11/30/93	0143SB02 0 11/03/93	0143SB03 0 11/30/93	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	HMW-43 1 11/17/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-07 1 11/29/93
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.12	<1.22	<1.24
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.79	<1.95	<1.99
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
VOCs										
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623

Table E.10.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB01 0 11/30/93	0143SB02 0 11/03/93	0143SB03 0 11/30/93	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	HMW-43 1 11/17/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-07 1 11/29/93
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0224	<0.0244	<0.0249
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0224	<0.0244	<0.0249
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.00611	<0.00623
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0224	<0.0244	<0.0249
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.370	<0.403	<0.411
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0224	<0.0244	<0.0249
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0112	<0.0122	<0.0125
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	<0.00561	<0.00611	<0.00623

Table E.10.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB01	0143SB01	0143SB01	0143SB02	0143SB02	0143SB02	0143SB03	0143SB03	0143SB03	0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	143B1
Sample Depth(ft):		0	4	9	0	4	9	0	4	9	0	4	9	1	4	9	1	4	9	5
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/03/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/04/92
Metals																				
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.500 [0.600]
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<97.0 [<94.0]
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.40 [<2.40]
Chromium	mg/kg	<1.19 J	<6.23	<6.59	<5.92	<6.45	<6.47	<5.75	<6.19	<6.68	<5.97	<6.44	<6.51	<6.26	<16.1	<16.3	<13.5	<15.3	<6.56	NA
Hexavalent Chromium	mg/kg	<5.96	<1.25	<1.32	<1.18	<1.29	<1.29	<1.15	<1.24	<1.34	<1.19	<1.29	<1.30	<1.25	<1.29	<1.30	<1.08	<1.22	<1.31	5.30 [5.00]
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<24.0 [<24.0]
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0900 [<0.0800]
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.480 [<0.520]
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.90 [<4.70]
Parameters																				
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																				
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.10.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB01	0143SB01	0143SB01	0143SB02	0143SB02	0143SB02	0143SB03	0143SB03	0143SB03	0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	143B1
Sample Depth(ft):		0	4	9	0	4	9	0	4	9	0	4	9	1	4	9	1	4	9	5
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/03/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/04/92
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																				
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																				
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.10.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	143B1 10 05/04/92	143B2 10 05/04/92	143B3 10 05/04/92	HMW-11 10 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
Metals														
ARSENIC	mg/kg	<0.490	<0.500	0.69	0.59	8.56	9.64	5.48	3.51	3.42	<3.34	<3.12	3.46	<3.47
BARIUM	mg/kg	<95.0	<92.0	<96.0	<93.0	73	179	72	97.8	102	77.4	47.4	70.5	94.3
CADMIUM	mg/kg	<2.40	<2.30	<2.40	<2.30	<1.12	<1.14	<1.28	<3.06	<6.08	<6.68	<6.23	<6.08	<6.93
Chromium	mg/kg	NA	NA	NA	NA	6.4	19.3	<1.28	<15.3	<30.4	<33.4	<31.2	<30.4	<34.7
Hexavalent Chromium	mg/kg	1.1	0.027	14	NA	NA	NA	<6.41	<1.22	<1.22	<1.34	<1.25	<1.22 J	<1.39
LEAD	mg/kg	<24.0	<23.0	<24.0	<23.0	<2.80	14.7	<1.28	6	<3.04	<3.34	3.65	6.63	4.2
MERCURY	mg/kg	<0.0900	<0.100	<0.100	<0.100	0.0258	<0.0227	0.0386	<0.0244	<0.0243	<0.0267	0.0474	<0.0243	<0.0277
SELENIUM	mg/kg	<0.490	<2.50	<0.500	<0.440	<2.80	<2.83	<3.21	<3.06	<3.04	<3.34	<3.12	<3.04	<3.47
SILVER	mg/kg	<4.80	<4.60	<4.80	<4.60	10.8	8.84	16.7	<15.3	35.3	74.8	<31.2	<30.4	<34.7
Parameters														
TPH	mg/kg	NA	NA	NA	<13.0	<33.6	<33.9	<38.5	<36.6	<36.4	<39.9	<37.3	<36.4	<41.6
SVOCs														
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	<2.00	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-CHLOROPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	<2.00	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-Methylphenol	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-NITROANILINE	mg/kg	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
2-NITROPHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	<0.700	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
3-NITROANILINE	mg/kg	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	<0.700	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	<0.0500	<0.0224	<0.0452	<0.0257	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
4-NITROPHENOL	mg/kg	NA	NA	NA	<2.00	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
Acenaphthene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
ACENAPHTHYLENE	mg/kg	NA	NA	NA	<0.300	NA	NA	NA	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
ANTHRACENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BENZIDINE	mg/kg	NA	NA	NA	<1.70	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
Benzo(a)anthracene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(a)pyrene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BENZOIC ACID	mg/kg	NA	NA	NA	<2.00	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Di-n-butyl phthalate	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Di-n-octyl phthalate	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	<1.12	<1.13	<1.28	<1.22	<1.21 [<1.29]	<1.33	<1.24	<1.21	<1.39
FLUORANTHENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
FLUORENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458

Table E.10.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	143B1 10 05/04/92	143B2 10 05/04/92	143B3 10 05/04/92	HMW-11 10 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLOROETHANE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.00646]	<0.440	<0.411	<0.401	<0.458
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	<2.00	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
PHENANTHRENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
PHENOL	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
P-NITROANILINE	mg/kg	NA	NA	NA	NA	<1.79	<1.81	<2.06	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
PYRENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
TPHs														
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	<0.0200	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.300	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2-Dichloropropane	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	<0.0200	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
2-butanone	mg/kg	NA	NA	NA	<0.100	<0.0224	<0.0452	<0.0257	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
ACETONE	mg/kg	NA	NA	NA	<0.100	<0.0224	<0.0452	<0.0257	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
ACROLEIN	mg/kg	NA	NA	NA	<0.200	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
ACRYLONITRILE	mg/kg	NA	NA	NA	<0.100	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
BENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
BROMOMETHANE	mg/kg	NA	NA	NA	<0.00500	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
CARBON DISULFIDE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CFC-11	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.00646]	<0.0134	<0.0125	<0.0122	<0.0139
CFC-12	mg/kg	NA	NA	NA	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CHLOROETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
CHLOROFORM	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CHLOROMETHANE	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
DIBROMOMETHANE	mg/kg	NA	NA	NA	<0.0200	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
DICHLOROMETHANE	mg/kg	NA	NA	NA	<0.00500	NA	NA	NA	<0.00611	<0.00608 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
ETHANOL	mg/kg	NA	NA	NA	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	<0.0200	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
ETHYLBENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
Iodomethane	mg/kg	NA	NA	NA	<0.0200	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	<0.0500	<0.0224	<0.0452	<0.0257	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
METHYLBENZENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
NAPHTHALENE	mg/kg	NA	NA	NA	<0.300	<0.370	<0.374	<0.424	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
STYRENE (MONOMER)	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
TETRACHLOROETHENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611	<0.00668	<0.00623	<0.00608	<0.00693
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
VINYL ACETATE	mg/kg	NA	NA	NA	<0.0100	<0.0224	<0.0452	<0.0257	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
Vinyl Chloride	mg/kg	NA	NA	NA	<0.0100	<0.0112	<0.0226	<0.0129	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
Xylenes	mg/kg	NA	NA	NA	<0.00500	<0.00561	<0.0113	<0.00643	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB01	0143SB01	0143SB01	0143SB02	0143SB02	0143SB02	0143SB03	0143SB03	0143SB03	0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06
Sample Depth(ft):		0	4	9	0	4	9	0	4	9	0	4	9	1	4	9	1	4	9
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/03/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93
Metals																			
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	<1.19 J	<6.23	<6.59	<5.92	<6.45	<6.47	<5.75	<6.19	<6.68	<5.97	<6.44	<6.51	<6.26	<16.1	<16.3	<13.5	<15.3	<6.56
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.96	<1.25	<1.32	<1.18	<1.29	<1.29	<1.15	<1.24	<1.34	<1.19	<1.29	<1.30	<1.25	<1.29	<1.30	<1.08	<1.22	<1.31
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																			
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																			
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																			
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB01	0143SB01	0143SB01	0143SB02	0143SB02	0143SB02	0143SB03	0143SB03	0143SB03	0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06
Sample Depth(ft):		0	4	9	0	4	9	0	4	9	0	4	9	1	4	9	1	4	9
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/03/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																			
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																			
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB01	0143SB01	0143SB01	0143SB02	0143SB02	0143SB02	0143SB03	0143SB03	0143SB03	0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06
Sample Depth(ft):		0	4	9	0	4	9	0	4	9	0	4	9	1	4	9	1	4	9
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/03/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		143B1	143B1	143B1	143B1	143B2	143B3	HLSF-SB-022	HLSF-SB-023	HLSF-SB-023	HLSF-SB-024	HLSF-SB-024	HLSF-SB-026	HLSF-SB-026	HLSF-SB-028	HLSF-SB-028	HMW-11
Sample Depth(ft):		5	10	15	20	10	10	10 - 11	10 - 11	20 - 21	10 - 11	20 - 21	10 - 11	20 - 21	15 - 16	20 - 21	10
Date Collected:	Units	05/04/92	05/04/92	05/04/92	05/04/92	05/04/92	05/04/92	11/03/06	11/07/06	11/07/06	11/06/06	11/06/06	11/06/06	11/06/06	11/13/06	11/13/06	04/17/92
Metals																	
ARSENIC	mg/kg	0.500 [0.600]	<0.490	<0.520	1.2	<0.500	0.69	<2.00	<2.00	<2.00	<2.00	4.05	<2.00	<2.00	<2.00	<2.00	0.59
BARIUM	mg/kg	<97.0 [<94.0]	<95.0	<95.0	46	<92.0	<96.0	27.7	30.7	156	27.2	173	22.3	472	31.3	16.2	<93.0
CADMIUM	mg/kg	<2.40 [<2.40]	<2.40	<2.40	<1.10	<2.30	<2.40	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<2.30
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	1.2	1.54	14.5	2.05	15.1	3.81	8.38	8.04	8.2	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	1.47	1.16	12.7	1.63	11.7	2.08	6.09	6.78	5.66	NA
Hexavalent Chromium	mg/kg	5.30 [5.00]	1.1	0.95	0.07	0.027	14	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	NA
LEAD	mg/kg	<24.0 [<24.0]	<24.0	<24.0	<11.0	<23.0	<24.0	1.53	2.21	34.2	<1.00	31.8	2.92	20.2	13.9	16.1	<23.0
MERCURY	mg/kg	<0.0900 [<0.0800]	<0.0900	<0.100	<0.100	<0.100	<0.100	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.100
SELENIUM	mg/kg	<0.480 [<0.520]	<0.490	<0.520	<0.540	<2.50	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.440
SILVER	mg/kg	<4.90 [<4.70]	<4.80	<4.80	<2.20	<4.60	<4.80	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<4.60
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	920	870	1,290	655	1,290	980	735	274	473	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	3.8	3.88	45.1	3.73	40.2	5.52	17.9	29.4	20.2	NA
Other																	
FOC	%	NA	NA	NA	NA	NA	NA	5.01	3.89	4.77	5.69	4.54	4.9	3.25	6.52	2.62	NA
Parameters																	
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	0.81	5.82	21.9	5.15	3.2	1.15	1.44	1.33	0.641	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	36.8	35.5	300	34.9	250	84.1	166	73.7	162	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.300
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.300
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		143B1	143B1	143B1	143B1	143B2	143B3	HLSF-SB-022	HLSF-SB-023	HLSF-SB-023	HLSF-SB-024	HLSF-SB-024	HLSF-SB-026	HLSF-SB-026	HLSF-SB-028	HLSF-SB-028	HMW-11
Sample Depth(ft):		5	10	15	20	10	10	10 - 11	10 - 11	20 - 21	10 - 11	20 - 21	10 - 11	20 - 21	15 - 16	20 - 21	10
Date Collected:	Units	05/04/92	05/04/92	05/04/92	05/04/92	05/04/92	05/04/92	11/03/06	11/07/06	11/07/06	11/06/06	11/06/06	11/06/06	11/06/06	11/13/06	11/13/06	04/17/92
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<1.70
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.300
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.330
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA
TPHs																	
DRO	mg/kg	NA	NA	NA	NA	NA	NA	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	143B1 5 05/04/92	143B1 10 05/04/92	143B1 15 05/04/92	143B1 20 05/04/92	143B2 10 05/04/92	143B3 10 05/04/92	HLSF-SB-022 10 - 11 11/03/06	HLSF-SB-023 10 - 11 11/07/06	HLSF-SB-023 20 - 21 11/07/06	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-024 20 - 21 11/06/06	HLSF-SB-026 10 - 11 11/06/06	HLSF-SB-026 20 - 21 11/06/06	HLSF-SB-028 15 - 16 11/13/06	HLSF-SB-028 20 - 21 11/13/06	HMW-11 10 04/17/92
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.300
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.100
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00500
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0200
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.300
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Sample Depth(ft): / Date Collected:	Units	HMW-11 15 04/17/92	HMW-11 20 04/17/92	HMW-36 18 11/04/93	HMW-39 19 11/17/93	HMW-40 18 11/05/93	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93
Metals																
ARSENIC	mg/kg	<0.440	1.2	6.88	3.56	11.5	8.56	9.64	5.48	11.6	3.51	3.42	<3.34	<3.12	3.46	<3.47
BARIUM	mg/kg	<93.0	<40.0	36.9	196	49.3 J	73	179	72	104	97.8	102	77.4	47.4	70.5	94.3
CADMIUM	mg/kg	<2.30	<0.990	<1.27 J	<1.27	<1.15	<1.12	<1.14	<1.28	<1.33	<3.06	<6.08	<6.68	<6.23	<6.08	<6.93
Chromium	mg/kg	NA	NA	<6.88 J	<20.3 J	<9.50 J	6.4	19.3	<1.28	16	<15.3	<30.4	<33.4	<31.2	<30.4	<34.7
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	<6.41	NA	<1.22	<1.22	<1.34	<1.25	<1.22 J	<1.39
LEAD	mg/kg	<23.0	<9.90	<5.28 J	10.4	8.38 J	<2.80	14.7	<1.28	9.99	6	<3.04	<3.34	3.65	6.63	4.2
MERCURY	mg/kg	<0.100	<0.100	<0.0252 J	<0.0254	<0.0230 J	0.0258	<0.0227	0.0386	<0.0267	<0.0244	<0.0243	<0.0267	0.0474	<0.0243	<0.0277
SELENIUM	mg/kg	<0.440	<0.470	<3.16 J	<3.18	<2.87 J	<2.80	<2.83	<3.21	<3.33	<3.06	<3.04	<3.34	<3.12	<3.04	<3.47
SILVER	mg/kg	<4.70	<2.00	7.78	8.77	<5.75 J	10.8	8.84	16.7	17.3	<15.3	35.3	74.8	<31.2	<30.4	<34.7
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<13.0	<11.0	<37.8	<38.0	<34.4	<33.6	<33.9	<38.5	<39.9	<36.6	<36.4	<39.9	<37.3	<36.4	<41.6
SVOCs																
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1-Chloronaphthalene	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
2-METHYLNAPHTHALENE	mg/kg	NA	NA	1.37	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-Methylphenol	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0252 J	<0.0254	<0.0230	<0.0224	<0.0452	<0.0257	<0.0267	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-11	HMW-11	HMW-36	HMW-39	HMW-40	HMW-43	HMW-43	HMW-43	HMW-43	SWMU 148 SB-03	SWMU 148 SB-03	SWMU 148 SB-03	SWMU 148 SB-07	SWMU 148 SB-07	SWMU 148 SB-07
Sample Depth(ft):		15	20	18	19	18	1	3	9	18	1	4	8	1	4	9
Date Collected:	Units	04/17/92	04/17/92	11/04/93	11/17/93	11/05/93	11/17/93	11/17/93	11/17/93	11/17/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BENZIDINE	mg/kg	<1.70	<1.70	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
BENZYL ALCOHOL	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
DIPHENYLAMINE	mg/kg	NA	NA	<1.26	<1.27	<1.15	<1.12	<1.13	<1.28	<1.33	<1.22	<1.21 [<1.29]	<1.33	<1.24	<1.21	<1.39
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
FLUORENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.00646]	<0.440	<0.411	<0.401	<0.458
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	0.496	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
PHENOL	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
P-NITROANILINE	mg/kg	NA	NA	<2.02	<2.03	<1.84	<1.79	<1.81	<2.06	<2.13	<1.95	<1.94 [<2.07]	<2.13	<1.99	<1.94	<2.22
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	<13.0	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693

Table E.10.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-11	HMW-11	HMW-36	HMW-39	HMW-40	HMW-43	HMW-43	HMW-43	HMW-43	SWMU 148 SB-03	SWMU 148 SB-03	SWMU 148 SB-03	SWMU 148 SB-07	SWMU 148 SB-07	SWMU 148 SB-07
Sample Depth(ft):		15	20	18	19	18	1	3	9	18	1	4	8	1	4	9
Date Collected:	Units	04/17/92	04/17/92	11/04/93	11/17/93	11/05/93	11/17/93	11/17/93	11/17/93	11/17/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	<0.100	<0.0252 J	<0.0254	<0.0230	<0.0224	<0.0452	<0.0257	<0.0267	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	0.176 J	<0.0254	<0.0230	<0.0224	<0.0452	<0.0257	<0.0267	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
ACROLEIN	mg/kg	<0.200	<0.200	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
BENZENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CFC-11	mg/kg	<0.0100	<0.0100	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.00646]	<0.0134	<0.0125	<0.0122	<0.0139
CFC-12	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
cis-1,2-Dichloroethene	mg/kg	NA	NA	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00611	<0.00608 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
ETHANOL	mg/kg	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0252 J	<0.0254	<0.0230	<0.0224	<0.0452	<0.0257	<0.0267	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.417	<0.419	<0.379	<0.370	<0.374	<0.424	<0.440	<0.403	<0.401 [<0.426]	<0.440	<0.411	<0.401	<0.458
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611	<0.00668	<0.00623	<0.00608	<0.00693
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0252 J	<0.0254	<0.0230	<0.0224	<0.0452	<0.0257	<0.0267	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0249	<0.0243	<0.0277
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0126 J	<0.0127	<0.0115	<0.0112	<0.0226	<0.0129	<0.0133	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0125	<0.0122	<0.0139
Xylenes	mg/kg	<0.00500	<0.00500	<0.00631 J	<0.00635	<0.00575	<0.00561	<0.0113	<0.00643	<0.00667	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00623	<0.00608	<0.00693

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-36 02/18/04	HMW-36 07/29/04	HMW-36 04/06/05	HMW-36 08/10/05	HMW-36 02/21/06
Explosives																
2,4,6-TRINITROTOLUENE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA
2-NITROTOLUENE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500
4-NITROTOLUENE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
RDX	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Metals																
ALUMINUM	mg/L	NA	NA	NA	3.9	0.337	<0.0300	1.34	0.051	<0.0300	NA	<0.100	<0.100	<0.0300	<0.0300	0.213
ANTIMONY	mg/L	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/L	NA	NA	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500
BARIUM	mg/L	NA	NA	0.01	<0.100	<0.100	0.013	0.035	0.026	0.042	NA	<0.100	<0.100	0.022	0.032	0.036
BERYLLIUM	mg/L	NA	NA	<0.00250	<0.00250	0.004	0.003	<0.00250	0.007	<0.00250	NA	<0.00250	<0.00250	<0.00250	<0.00250	0.008
BORON	mg/L	NA	NA	NA	4.42	4.67	5.23	3.94	5.14	4.26	NA	6.48	8.16	12.6	7.63	7.1
CADMIUM	mg/L	0.002	<0.00100 [<0.00100]	<0.00200	<0.00500	<0.00500	<0.00100	<0.00100	0.006	<0.00100	0.003	<0.00500	<0.00500	<0.00100	0.038	0.007
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	NA	357	454	NA	NA	NA	NA	NA	517
Chromium	mg/L	0.033	0.250 [0.225]	0.866	0.15	0.18	0.165	<0.0100	0.15	0.115	0.121	<0.0100	<0.0100	<0.0100	<0.0100	0.036
COBALT	mg/L	NA	NA	<0.00500	<0.0200	<0.0200	<0.0200	<0.00500	0.006	<0.00500	NA	<0.0200	<0.0200	<0.0200	<0.00500	0.008
COPPER	mg/L	<0.00500	0.0290 [0.0260]	0.07	<0.0125	0.042	0.078	0.046	0.046	0.012	<0.00500	<0.0125	<0.0125	0.06	0.115	1.34
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	NA	NA	NA	0.263	0.22	0.178	0.188	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.196	NA
Iron	mg/L	NA	NA	NA	2.18	0.267	0.025	0.944	0.081	0.134	NA	0.191	7.02	0.162	1.72	25.7
LEAD	mg/L	<0.00500	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	0.813	0.382	NA	NA	NA	NA	NA	1.1
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	695	780	NA	NA	NA	NA	NA	606
MANGANESE	mg/L	NA	NA	NA	0.032	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500	NA	0.231	0.616	0.098	0.319	0.601
MERCURY	mg/L	NA	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	NA	NA	NA	0.331	0.352	0.285	0.245	0.32	0.268	NA	0.214	<0.0500	0.378	0.242	0.126
NICKEL	mg/L	NA	NA	0.366	<0.0250	<0.0250	<0.0100	<0.0100	0.012	0.012	NA	<0.0250	<0.0250	<0.0100	<0.0100	0.011
POTASSIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	105	126	NA	NA	NA	NA	NA	108
SELENIUM	mg/L	NA	NA	0.247	<0.0500	<0.0500	0.129	<0.0100	0.083	0.08	NA	<0.0500	<0.0500	<0.0100	<0.0100	<0.0100
SILVER	mg/L	<0.00200	<0.00200 [<0.00200]	<0.00500	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200
SODIUM	mg/L	12,100	13,500 [12,400]	NA	NA	NA	NA	NA	2,470	3,060	3,640	NA	NA	NA	NA	944
STRONTIUM	mg/L	NA	NA	NA	7.03	6.32	16.7	11.4	5.65	15	NA	9.42	8.67	36.4	13.4	8.91
THALLIUM	mg/L	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/L	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.037	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	0.025
Total Cyanide	mg/L	NA	NA	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100
VANADIUM (FUME OR DUST)	mg/L	NA	NA	0.005	<0.0250	0.039	0.037	0.065	0.07	0.035	NA	<0.0250	<0.0250	0.031	0.053	0.12
ZINC	mg/L	<0.00500	<0.00500 [<0.00500]	<0.0100	<0.0250	<0.0250	<0.00500	<0.00500	0.013	0.021	<0.00500	<0.0250	<0.0250	0.005	<0.00500	0.031
Metals-Dissolved																
Aluminum, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0500	<0.0500	0.7	<0.0300	<0.0300	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300
Arsenic, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500
Barium, Dissolved	mg/L	NA	NA	NA	<0.100	<0.0100	0.013	<0.0100	0.02	0.034	NA	<0.100	0.032	<0.0100	0.019	0.029
Beryllium, Dissolved	mg/L	NA	NA	NA	<0.00250	<0.00250	0.003	<0.00250	0.007	<0.00250	NA	<0.00250	<0.00250	<0.00250	<0.00250	0.008
Boron, Dissolved	mg/L	NA	NA	NA	4.39	5.54	4.84	3.56	5.06	3.61	NA	5.7	8.26	5.48	6.98	7.62
Cadmium, Dissolved	mg/L	0.002	<0.00100 [<0.00100]	NA	<0.0250	<0.00100	<0.00100	<0.00100	0.006	<0.00100	<0.00100	<0.0250	<0.00100	<0.00100	0.014	0.007
Calcium, Dissolved	mg/L	NA	NA	NA	317	352	382	519	368	369	NA	460	484	529	513	489
Chromium, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	NA	0.15	0.21	0.165	<0.00500	0.15	0.068	0.095	<0.0100	<0.00500	<0.0100	<0.00500	0.017
Cobalt, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.006	<0.00500	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.008
Copper, Dissolved	mg/L	<0.0125	<0.0125 [<0.0125]	NA	<0.0125	<0.0125	0.077	0.04	0.046	<0.0125	<0.0125	<0.0125	<0.0125	0.045	0.114	0.02
Dissolved Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0500	0.012	<0.0100	<0.0100	0.012	NA	<0.0500	0.146	<0.0100	1.61	0.029
Lead, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500
Lithium, Dissolved	mg/L	NA	NA	NA	<0.00500	0.977	0.991	0.6	0.803	0.155	NA	0.815	1.58	0.721	0.82	1.06
Magnesium, Dissolved	mg/L	NA	NA	NA	590	791	811	426	748	714	NA	567	626	678	603	584
Manganese, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	0.229	0.597	0.047	0.296	0.59
Molybdenum, Dissolved	mg/L	NA	NA	NA	0.331	0.395	0.262	0.225	0.32	0.224	NA	0.207	0.267	0.163	0.196	0.124
Nickel, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.012	0.008	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.008

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-36 02/18/04	HMW-36 07/29/04	HMW-36 04/06/05	HMW-36 08/10/05	HMW-36 02/21/06
Potassium, Dissolved	mg/L	NA	NA	NA	113	NA	NA	NA	98.2	106	NA	138	NA	NA	NA	105
Selenium, Dissolved	mg/L	NA	NA	NA	0.123	<0.0100	0.129	<0.0100	0.083	0.06	NA	0.05	<0.0100	<0.0500	<0.0100	<0.0100
Silver, Dissolved	mg/L	<0.00200	<0.00200 [<0.00200]	NA	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200
Sodium, Dissolved	mg/L	11,400	12,600 [12,200]	NA	2,560	NA	2,710	861	2,270	1,890	3,360	1,090	NA	769	954	990
Strontium, Dissolved	mg/L	NA	NA	NA	6.94	6.94	15.4	6.9	5.56	6.5	NA	9.21	9.95	15.3	13.4	8.9
Tin, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	0.035	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	0.025
Vanadium, Dissolved	mg/L	NA	NA	NA	0.035	<0.00500	0.036	0.059	0.068	0.02	NA	<0.0250	0.007	0.025	0.04	0.034
Zinc, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	NA	<0.0250	0.021	<0.0250	<0.00500	0.013	<0.00500	<0.00500	<0.0250	0.014	<0.0250	<0.00500	0.017
Parameters																
ALKALINITY	mg/L	134	182 [182]	178	172	202	158	156	162	168	154	552	588	414	570	614
Alkalinity, Bicarbonate	mg/L	134	182 [182]	178	172	202	158	156	162	168	154	552	588	414	570	614
Alkalinity, Carbonate	mg/L	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	<1.00 [<1.00]	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.29	<1.00	<1.00
Bromide	mg/L	2.13	3.62 [3.64]	8.22	1.63	<0.200	<0.200	<0.200	<0.200	1.56	3.43	0.94	<0.200	0.53	0.62	<0.200
Chloride (CL)	mg/L	13,200	16,800 [17,400]	14,400	2,300	2,360	2,360	1,980	2,270	2,450	2,160	982	952	312	557	613
CONDUCTIVITY	mS/cm	47.8	54.5	50.5	17.9	NA	18.6	17.8	16.8	16.4	16	6.76	9.72	10.3	3.58	3.26
CONDUCTIVITY	umhos/cm	47,200	53,600 [53,700]	53,100	1,820	17,400	17,200	17,400	15,700	15,600	15,600	1,010	10,100	7,850	8,790	8,780
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/L	2.56	7.06 [9.09]	<0.200	3.23	<0.200	3.28	3.25	5.59	7.02	6.68	5.15	4.76	5.84	5.05	4.84
Hydroxide Alkalinity	mg/L	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	NA	NA	NA	80.5	82.2	82.4	69.6	16.5	82.1	78.2	12.7	5.78	17.4	3.37	1.67
Nitrate + Nitrite	mg/L	252	415 [288]	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.200	<0.200	<1.00	<0.100	<0.100	<0.100	<0.100	<0.100
PERCHLORATE	mg/L	NA	NA	NA	NA	NA	NA	NA	0.0034	<0.0100	NA	NA	NA	NA	NA	<0.00500
pH	pH Units	7.91	8.02 [7.99]	7.78	7.6	7.54	7.76	7.54	7.74	8.31	7.53	7.3	7.2	7.31	7.36	7.19
Phosphorus	mg/L	<0.0500	0.0670 [0.0670]	NA	0.085	NA	<0.0500	0.199	0.057	<0.0500	0.069	<0.0500	NA	0.141	0.178	0.592
SILICA	mg/L	NA	NA	NA	31.5	27.2	26.2	31.1	32.2	29.6	NA	16.3	20.9	39	31.3	34
Silica, Dissolved	mg/L	NA	NA	NA	29.2	35.9	24.1	31	31.3	22.3	NA	15.2	24.2	20.1	29.2	31.3
Sulfate	mg/L	22,200	21,900 [22,700]	16,700	7,480	7,230	7,560	7,200	7,410	7,710	7,590	5,140	4,810	4,460	4,200	4,660
Temperature	deg c	17.2	18.1	21.9	22.1	NA	20.1	29	20	25.4	17.8	22.4	23.9	18	25.5	18.2
TKN	mg/L	NA	NA	NA	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	NA	<4.00	<4.00	<4.00	<4.00	<4.00
Total Dissolved Solids	mg/L	46,800	51,900 [53,200]	51,100	15,800	16,200	15,000	15,800	12,500	14,000	14,200	9,100	9,640	7,970	8,280	9,000
TOTAL ORGANIC CARBON	mg/L	NA	NA	5.9	2.43	1.6	1.47	4.03	1.7	1.6	NA	7.78	7.01	5.05	4.99	7.9
SVOCs																
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	0.024
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-36 02/18/04	HMW-36 07/29/04	HMW-36 04/06/05	HMW-36 08/10/05	HMW-36 02/21/06
2-NITROPHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA
3-NITROANILINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250 [<0.0250]	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Aniline	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	<0.0250	<0.0250 [<0.0250]	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500
CHLOROPHENOLS	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00	NA	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.000500	<5.00	<5.00	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<5.00	<0.000500	<0.00500	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	0.627	<0.000500	<0.000500	<0.000500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-36 02/18/04	HMW-36 07/29/04	HMW-36 04/06/05	HMW-36 08/10/05	HMW-36 02/21/06
P-CHLOROANILINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
PHENACETIN	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
TPHs																
DRO	mg/L	<5.00	<5.00 [<5.00]	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0
GRO	mg/L	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.174	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	0.0019	0.00186	0.00167	<0.00100	0.00178	0.00163	0.00153	0.00391	0.0046	0.00253	0.00162	0.00225
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200
1,2-Dibromoethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100
CARBON DISULFIDE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	0.00166	0.0014	0.00179	<0.00100	0.00219	0.00195	0.00183	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	0.0017	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00139	<0.00100	0.00117	0.00168
m,p-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-09 12/12/06	DRW-10 12/12/06	DRW-10 09/20/07	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-36 02/18/04	HMW-36 07/29/04	HMW-36 04/06/05	HMW-36 08/10/05	HMW-36 02/21/06
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100
METHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00172	0.00106	0.00179	0.00227
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	0.0438	0.0422	0.0383	<0.00100	0.0356	0.0359	0.0318	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-36 08/23/06	HMW-36 12/20/06	HMW-36 09/12/07	HMW-37 02/17/04	HMW-37 07/28/04	HMW-37 04/06/05	HMW-37 08/10/05	HMW-37 02/21/06	HMW-37 08/24/06	HMW-37 12/15/06	HMW-38 02/17/04	HMW-38 07/28/04	HMW-38 04/06/05
Explosives														
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	0.000632 [0.000791]	<0.000500 [<0.000500]	0.000697 [<0.000500]	NA	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500
2-NITROTOLUENE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	NA
4-NITROTOLUENE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
RDX	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
Metals														
ALUMINUM	mg/L	0.107	NA	NA	0.808	<0.100	<0.0300	0.0990 [0.100]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	NA	<0.100	<0.100	0.055
ANTIMONY	mg/L	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/L	<0.0100	NA	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	NA	<0.0100	<0.0100	<0.0100
BARIUM	mg/L	0.011	NA	<0.0100	<0.100	<0.100	0.017	0.0250 [0.0250]	0.0200 [0.0190]	0.0110 [0.0100]	NA	<0.100	<0.100	0.022
BERYLLIUM	mg/L	<0.00250	NA	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250 [<0.00250]	0.0100 [0.0100]	<0.00250 [<0.00250]	NA	<0.00250	<0.00250	<0.00250
BORON	mg/L	5.3	NA	NA	2.83	3.56	5.33	4.18 [3.81]	2.83 [2.92]	2.23 [2.09]	NA	5.37	6.13	9.87
CADMIUM	mg/L	<0.00100	<0.00100	<0.00200	<0.00500	<0.00500	<0.00100	0.0290 [<0.00100]	0.00600 [0.00700]	<0.00100 [<0.00100]	<0.00100	<0.00500	<0.00500	<0.00100
CALCIUM METAL	mg/L	540	NA	NA	NA	NA	NA	NA	530 [508]	513 [513]	NA	NA	NA	NA
Chromium	mg/L	0.005	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	0.0190 [0.0210]	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	0.05
COBALT	mg/L	<0.00500	NA	<0.00500	<0.0200	<0.0200	<0.0200	<0.00500 [<0.00500]	0.00600 [0.00700]	<0.00500 [<0.00500]	NA	<0.0200	<0.0200	<0.0200
COPPER	mg/L	0.006	<0.00500	<0.00500	<0.0125	<0.0125	0.069	0.266 [0.185]	0.205 [0.222]	0.0360 [0.0340]	<0.00500	<0.0125	<0.0125	0.017
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA	NA	NA	<0.0100	0.036	0.0322
Iron	mg/L	0.186	NA	NA	0.772	<0.0500	0.028	0.179 [0.0860]	1.26 [0.0250]	0.0450 [0.0150]	NA	0.177	<0.0500	0.041
LEAD	mg/L	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.00500
LITHIUM	mg/L	0.144	NA	NA	NA	NA	NA	NA	0.840 [0.859]	0.205 [0.198]	NA	NA	NA	NA
MAGNESIUM	mg/L	612	NA	NA	NA	NA	NA	NA	397 [386]	379 [379]	NA	NA	NA	NA
MANGANESE	mg/L	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250	<0.0250	<0.0250
MERCURY	mg/L	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	NA	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.169	NA	NA	0.139	<0.0500	0.254	0.246 [0.228]	0.149 [0.145]	0.103 [0.100]	NA	0.473	0.528	0.706
NICKEL	mg/L	<0.00500	NA	<0.00500	<0.0250	<0.0250	<0.0100	<0.0100 [<0.0100]	0.00800 [0.00700]	<0.00500 [<0.00500]	NA	<0.0250	<0.0250	<0.0100
POTASSIUM	mg/L	59	NA	NA	NA	NA	NA	NA	83.7 [84.7]	92.1 [92.1]	NA	NA	NA	NA
SELENIUM	mg/L	<0.0100	NA	<0.0200	<0.0500	<0.0500	<0.0100	<0.0100 [<0.0100]	<0.0100 [0.0260]	<0.0100 [<0.0100]	NA	0.191	<0.0500	<0.0100
SILVER	mg/L	<0.00200	<0.00200	<0.00500	<0.0125	<0.0125	<0.00200	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200	<0.0125	<0.0125	<0.00200
SODIUM	mg/L	523	948	NA	NA	NA	NA	NA	460 [463]	532 [530]	783	NA	NA	NA
STRONTIUM	mg/L	15.5	NA	NA	9.35	7.95	19.5	10.4 [9.40]	8.29 [8.19]	6.41 [6.15]	NA	5.51	5.02	22.5
THALLIUM	mg/L	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/L	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250	<0.0250	<0.0250
Total Cyanide	mg/L	NA	NA	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100 [0.130]	NA	NA	<0.0100	NA	<0.0100
VANADIUM (FUME OR DUST)	mg/L	0.044	NA	0.028	<0.0250	<0.0250	<0.0250	0.0550 [0.0530]	0.0450 [0.0460]	0.0120 [0.0110]	NA	0.038	<0.0250	0.056
ZINC	mg/L	0.036	<0.00500	0.018	<0.0250	<0.0250	<0.00500	<0.00500 [<0.00500]	0.0140 [0.0160]	0.00600 [0.00700]	<0.00500	<0.0250	<0.0250	<0.00500
Metals-Dissolved														
Aluminum, Dissolved	mg/L	<0.0300	NA	NA	<0.0500	<0.0500	<0.0500	0.0910 [0.100]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	NA	<0.0500	<0.0500	<0.0500
Arsenic, Dissolved	mg/L	<0.00500	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.0100	<0.00500	<0.0100
Barium, Dissolved	mg/L	<0.0100	NA	NA	<0.100	0.016	0.015	0.0130 [0.0130]	0.0200 [<0.0100]	0.0100 [0.0100]	NA	<0.100	0.015	0.02
Beryllium, Dissolved	mg/L	<0.00250	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250 [<0.00250]	0.00900 [0.00900]	<0.00250 [<0.00250]	NA	<0.00250	<0.00250	<0.00250
Boron, Dissolved	mg/L	4.49	NA	NA	2.69	3.13	3.97	3.36 [3.78]	2.83 [2.88]	2.12 [2.09]	NA	5.32	5.8	5.64
Cadmium, Dissolved	mg/L	<0.00100	<0.00100	NA	<0.0250	0.031	<0.00100	0.0130 [<0.00100]	0.00600 [0.00700]	<0.00100 [<0.00100]	<0.00100	<0.0250	<0.00100	<0.00100
Calcium, Dissolved	mg/L	497	NA	NA	477	462	455	463 [442]	504 [512]	535 [514]	NA	269	306	299
Chromium, Dissolved	mg/L	<0.00500	<0.00500	NA	<0.0100	0.195	<0.0100	<0.00500 [<0.00500]	0.0190 [0.0210]	<0.00500 [<0.00500]	<0.00500	<0.0100	0.031	<0.0100
Cobalt, Dissolved	mg/L	<0.00500	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500 [<0.00500]	0.00600 [0.00700]	<0.00500 [<0.00500]	NA	<0.0250	<0.00500	<0.0250
Copper, Dissolved	mg/L	<0.0125	<0.0125	NA	<0.0125	<0.0125	0.052	0.225 [0.180]	0.202 [0.205]	0.0410 [0.0310]	<0.0125	<0.0125	<0.0125	0.014
Dissolved Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved	mg/L	0.013	NA	NA	<0.0500	<0.0500	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	0.0100 [0.0100]	NA	<0.0500	0.072	<0.0100
Lead, Dissolved	mg/L	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.00500	<0.0100
Lithium, Dissolved	mg/L	0.091	NA	NA	0.545	0.654	0.757	0.440 [0.510]	0.836 [0.842]	0.202 [0.200]	NA	0.494	1.14	0.906
Magnesium, Dissolved	mg/L	557	NA	NA	401	379	351	433 [393]	376 [388]	386 [369]	NA	474	538	537
Manganese, Dissolved	mg/L	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250	<0.0250	<0.0250
Molybdenum, Dissolved	mg/L	0.147	NA	NA	0.14	0.388	0.156	0.190 [0.215]	0.145 [0.144]	0.101 [0.102]	NA	0.469	0.531	0.386
Nickel, Dissolved	mg/L	<0.00500	NA	NA	<0.0250	0.218	<0.0250	<0.00500 [<0.00500]	0.00800 [0.00700]	<0.00500 [<0.00500]	NA	<0.0250	0.03	<0.0250

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-36 08/23/06	HMW-36 12/20/06	HMW-36 09/12/07	HMW-37 02/17/04	HMW-37 07/28/04	HMW-37 04/06/05	HMW-37 08/10/05	HMW-37 02/21/06	HMW-37 08/24/06	HMW-37 12/15/06	HMW-38 02/17/04	HMW-38 07/28/04	HMW-38 04/06/05
Potassium, Dissolved	mg/L	76.3	NA	NA	88.9	NA	NA	NA	93.0 [92.1]	97.8 [97.6]	NA	106	NA	NA
Selenium, Dissolved	mg/L	<0.0100	NA	NA	<0.0500	<0.0100	<0.0500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	0.085	<0.0100	<0.0500
Silver, Dissolved	mg/L	<0.00200	<0.00200	NA	<0.0130	<0.00300	<0.0130	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200	<0.0130	<0.00300	<0.0130
Sodium, Dissolved	mg/L	420	919	NA	524	NA	699	550 [552]	463 [464]	498 [489]	927	1,700	NA	2,180
Strontium, Dissolved	mg/L	8.14	NA	NA	9.14	8.05	14.6	8.37 [8.95]	8.15 [8.17]	6.38 [6.30]	NA	5.27	5.88	11.1
Tin, Dissolved	mg/L	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	0.037	NA	NA	<0.0250	<0.00500	<0.0250	0.0490 [0.0510]	0.0420 [0.0460]	0.0120 [0.0120]	NA	0.035	0.036	0.041
Zinc, Dissolved	mg/L	0.005	<0.00500	NA	<0.0250	0.176	<0.0250	<0.00500 [<0.00500]	0.0140 [0.0160]	0.00500 [0.00500]	<0.00500	<0.0250	0.018	<0.0250
Parameters														
ALKALINITY	mg/L	186	362	180	146	144	144	146 [144]	138 [138]	136 [134]	138	160	152	156
Alkalinity, Bicarbonate	mg/L	186	362	180	146	144	144	146 [144]	138 [138]	136 [134]	138	160	152	156
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00
Bromide	mg/L	<0.200	<1.00	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	0.510 [<0.200]	<0.200 [<0.200]	<1.00	1.05	<0.200	1.07
Chloride (CL)	mg/L	178	492	94	367	328	332	277 [289]	339 [339]	514 [506]	456	1,200	1,160	1,210
CONDUCTIVITY	mS/cm	5.44	8.72	4.94	6.15	NA	7.14	5.90 [5.90]	5.58	5.96	6.7	13.6	13.3	14.8
CONDUCTIVITY	umhos/cm	5,500	77,000	5,340	6,280	5,480	6,560	6,090 [6,100]	6,000 [6,000]	5,540 [5,510]	67,400	1,380	13,300	13,200
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/L	2.28	5.62	5.64	3.72	3.74	3.92	3.99 [4.10]	3.74 [3.77]	2.43 [3.56]	4.28	3.36	<0.200	3.21
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	16.7	20.4	NA	12.9	12.2	16.1	12.8 [13.0]	15.7 [15.7]	10.0 [10.7]	26.2	47.9	42.3	43.9
Nitrate + Nitrite	mg/L	NA	NA	18.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	<0.200	<1.00	NA	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100 [<0.100]	<0.200 [<0.200]	<1.00	<0.100	<0.100	<0.100
PERCHLORATE	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	NA	NA	NA
pH	pH Units	7.7	7.25	7.59	7.5	7.83	7.51	7.55 [7.51]	7.47 [7.44]	7.92 [7.96]	7.58	7.6	7.64	7.72
Phosphorus	mg/L	<0.0500	<0.0500	NA	<0.0500	NA	0.108	0.146 [0.154]	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0500	<0.0500	NA	0.146
SILICA	mg/L	42.8	NA	NA	27.7	25	29.1	32.3 [29.7]	28.6 [29.1]	25.9 [24.2]	NA	31.5	30.3	43.8
Silica, Dissolved	mg/L	36.6	NA	NA	24.7	30.5	22.8	28.5 [29.1]	28.1 [28.8]	24.9 [24.5]	NA	30.6	33.9	28.5
Sulfate	mg/L	4,660	4,970	3,460	3,340	3,160	3,900	3,190 [3,260]	3,480 [3,480]	3,410 [3,350]	4,220	6,520	6,240	5,920
Temperature	deg c	23.2	15.9	21.6	20.7	NA	21.7	27.6 [27.6]	19.9	23.3	19.2	20.5	21.7	21.8
TKN	mg/L	<4.00	NA	NA	<4.00	<4.00	<4.00	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [5.04]	NA	<4.00	<4.00	<4.00
Total Dissolved Solids	mg/L	5,750	8,060	5,610	5,720	5,780	6,180	5,830 [6,080]	5,670 [6,120]	4,700 [4,700]	6,540	11,800	11,900	11,900
TOTAL ORGANIC CARBON	mg/L	2.8	NA	2.75	1.25	1.04	1.34	2.82 [2.20]	1.40 [1.40]	1.90 [1.60]	NA	1.87	1.33	1.52
SVOCs														
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00500
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	0.0053	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<20.0	<20.0	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-Butoxy Ethanol	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-Methyl pyridine	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-Methylphenol	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-Naphthylamine	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
2-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-36 08/23/06	HMW-36 12/20/06	HMW-36 09/12/07	HMW-37 02/17/04	HMW-37 07/28/04	HMW-37 04/06/05	HMW-37 08/10/05	HMW-37 02/21/06	HMW-37 08/24/06	HMW-37 12/15/06	HMW-38 02/17/04	HMW-38 07/28/04	HMW-38 04/06/05
2-NITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500
3-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<5.00	<5.00	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Acenaphthene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
ACETOPHENONE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Aniline	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
BENZIDINE	mg/L	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<15.0	<15.0	<0.0100
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
BENZOIC ACID	mg/L	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<20.0	<20.0	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500 [<0.0500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<10.0	<10.0	<0.0100
CHLOROPHENOLS	mg/L	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
DIBENZOFURAN	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Diphenylhydrazine	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
FLUORANTHENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
FLUORENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
m,p-Cresol	mg/L	<0.00500	<0.00500	<0.00500	NA	<5.00	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	NA	<5.00	NA
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00500
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
NITROBENZENE	mg/L	<0.00500	<0.00500	<0.000500	<5.00	<0.000500	<0.00500	<0.000500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-36 08/23/06	HMW-36 12/20/06	HMW-36 09/12/07	HMW-37 02/17/04	HMW-37 07/28/04	HMW-37 04/06/05	HMW-37 08/10/05	HMW-37 02/21/06	HMW-37 08/24/06	HMW-37 12/15/06	HMW-38 02/17/04	HMW-38 07/28/04	HMW-38 04/06/05
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500
PHENACETIN	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PHENANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PHENOL	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
P-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PROPYZAMIDE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PYRENE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
PYRIDINE	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
TPHs														
DRO	mg/L	<5.00	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0 [<50.0]	<50.0 [<50.0]	<5.00 [<5.00]	<5.00	<50.0	<50.0	<50.0
GRO	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	0.11	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	0.00235	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00200
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00500
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-36 08/23/06	HMW-36 12/20/06	HMW-36 09/12/07	HMW-37 02/17/04	HMW-37 07/28/04	HMW-37 04/06/05	HMW-37 08/10/05	HMW-37 02/21/06	HMW-37 08/24/06	HMW-37 12/15/06	HMW-38 02/17/04	HMW-38 07/28/04	HMW-38 04/06/05
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	0.00236	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	0.0106	0.0108	0.011
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-38 08/10/05	HMW-38 02/21/06	HMW-38 08/24/06	HMW-38 12/15/06	HMW-38 09/11/07	HMW-39 02/20/04	HMW-39 08/02/04	HMW-39 04/08/05	HMW-39 08/09/05	HMW-39 02/15/06
Explosives											
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
2,6-DNT / 2,4-DNT	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
3-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]
4-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
RDX	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
TETRYL	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
Metals											
ALUMINUM	mg/L	0.092	<0.0300	<0.0300	NA	NA	0.102 [<0.100]	<0.100 [<0.100]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	<0.0300 [<0.0300]
ANTIMONY	mg/L	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA
ARSENIC	mg/L	<0.00500	<0.00500	<0.0100	NA	<0.00500	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BARIUM	mg/L	0.023	0.019	<0.0100	NA	0.011	<0.100 [<0.100]	0.0130 [0.0140]	0.0100 [0.0100]	<0.0100 [<0.0100]	0.0140 [0.0140]
BERYLLIUM	mg/L	<0.00250	0.009	<0.00250	NA	<0.00250	0.0120 [0.0100]	<0.00250 [<0.00250]	0.00300 [0.00300]	<0.00250 [<0.00250]	0.00700 [0.00600]
BORON	mg/L	5.54	5.03	3.74	NA	NA	5.88 [5.86]	6.37 [6.39]	6.21 [5.97]	3.28 [4.36]	5.75 [5.70]
CADMIUM	mg/L	<0.00100	0.007	<0.00100	<0.00100	<0.00200	<0.00500 [<0.00500]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CALCIUM METAL	mg/L	NA	287	344	NA	NA	NA	NA	NA	NA	403 [408]
Chromium	mg/L	0.024	0.041	0.005	0.023	0.053	0.292 [0.284]	0.280 [0.275]	0.233 [0.245]	0.127 [0.192]	0.178 [0.186]
COBALT	mg/L	0.07	0.007	<0.00500	NA	<0.00500	<0.0200 [<0.0200]	<0.00500 [<0.00500]	<0.0200 [<0.0200]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
COPPER	mg/L	2	0.208	<0.00500	<0.00500	<0.00500	0.0370 [0.0340]	0.00500 [<0.00500]	0.0830 [0.0770]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	0.033	NA	NA	NA	NA	0.313 [0.306]	0.305 [0.300]	0.248 [0.273]	0.261 [0.272]	NA
Iron	mg/L	0.088	0.029	0.027	NA	NA	<0.0500 [0.0560]	<0.0500 [0.0990]	<0.0100 [<0.0100]	<0.0100 [0.0510]	<0.0100 [<0.0100]
LEAD	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
LITHIUM	mg/L	NA	0.842	0.151	NA	NA	NA	NA	NA	NA	0.669 [0.625]
MAGNESIUM	mg/L	NA	497	560	NA	NA	NA	NA	NA	NA	671 [678]
MANGANESE	mg/L	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
MERCURY	mg/L	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]
MOLYBDENUM	mg/L	0.432	0.369	<0.0500	NA	NA	0.957 [0.929]	0.939 [0.931]	0.708 [0.742]	0.398 [0.618]	0.695 [0.660]
NICKEL	mg/L	4.88	0.007	<0.00500	NA	<0.00500	<0.0250 [<0.0250]	<0.00500 [0.00600]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.00500 [<0.00500]
POTASSIUM	mg/L	NA	102	122	NA	NA	NA	NA	NA	NA	116 [116]
SELENIUM	mg/L	<0.0100	0.042	0.041	NA	0.06	0.317 [0.238]	<0.0100 [<0.0100]	0.120 [0.122]	<0.0100 [<0.0100]	0.0780 [0.0780]
SILVER	mg/L	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.0125 [<0.0125]	<0.00300 [<0.00300]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]
SODIUM	mg/L	NA	1,890	2,010	2,330	NA	NA	NA	NA	NA	3,140 [3,110]
STRONTIUM	mg/L	8.72	8.38	4.22	NA	NA	5.90 [6.00]	6.80 [6.76]	13.7 [13.1]	14.8 [12.8]	4.67 [4.71]
THALLIUM	mg/L	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA
TIN	mg/L	<0.0250	0.028	<0.0250	NA	<0.0250	0.200 [0.204]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
Total Cyanide	mg/L	NA	<0.0100	NA	NA	<0.0100	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]
VANADIUM (FUME OR DUST)	mg/L	0.074	0.057	0.015	NA	0.029	0.0580 [0.0540]	0.0350 [0.0350]	0.0350 [0.0330]	0.0300 [0.0360]	<0.00500 [<0.00500]
ZINC	mg/L	<0.00500	0.016	0.005	<0.00500	<0.0100	<0.0250 [<0.0250]	0.0130 [0.0140]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.0100 [0.00900]
Metals-Dissolved											
Aluminum, Dissolved	mg/L	0.089	<0.0300	<0.0300	NA	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0300 [<0.0300]	<0.0300 [<0.0300]
Arsenic, Dissolved	mg/L	<0.00500	<0.00500	<0.00500	NA	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Barium, Dissolved	mg/L	0.013	0.019	<0.0100	NA	NA	<0.100 [<0.100]	0.0130 [0.0130]	0.0100 [0.0100]	<0.0100 [<0.0100]	0.0130 [0.0130]
Beryllium, Dissolved	mg/L	<0.00250	0.008	<0.00250	NA	NA	<0.00250 [<0.00250]	<0.00250 [<0.00250]	0.00300 [0.00300]	<0.00250 [<0.00250]	0.00700 [0.00600]
Boron, Dissolved	mg/L	5.35	4.89	3.64	NA	NA	5.20 [3.98]	6.54 [6.53]	5.91 [5.91]	2.97 [3.97]	5.70 [5.68]
Cadmium, Dissolved	mg/L	<0.00100	0.007	<0.00100	<0.00100	NA	<0.0250 [<0.0250]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
Calcium, Dissolved	mg/L	345	292	333	NA	NA	379 [381]	NA	440 [433]	434 [436]	390 [401]
Chromium, Dissolved	mg/L	0.019	0.044	<0.00500	<0.00500	NA	0.222 [0.173]	0.276 [0.281]	0.232 [0.229]	0.125 [0.154]	0.111 [0.109]
Cobalt, Dissolved	mg/L	0.016	0.005	<0.00500	NA	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Copper, Dissolved	mg/L	0.056	<0.0125	<0.0125	<0.0125	NA	<0.0125 [<0.0125]	0.0170 [0.0160]	0.0830 [0.0750]	<0.0125 [<0.0125]	<0.0125 [<0.0125]
Dissolved Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved	mg/L	<0.0100	<0.0100	0.01	NA	NA	<0.0500 [0.0510]	<0.0500 [1.69]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
Lead, Dissolved	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Lithium, Dissolved	mg/L	<0.00500	0.743	0.151	NA	NA	0.570 [0.417]	1.15 [1.13]	1.01 [<0.00500]	0.640 [0.690]	0.632 [0.624]
Magnesium, Dissolved	mg/L	582	497	535	NA	NA	670 [664]	NA	776 [779]	751 [713]	655 [639]
Manganese, Dissolved	mg/L	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
Molybdenum, Dissolved	mg/L	0.423	0.37	0.27	NA	NA	0.718 [0.560]	0.873 [0.875]	0.660 [0.702]	0.350 [0.565]	0.660 [0.659]
Nickel, Dissolved	mg/L	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.00500 [<0.00500]

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-38 08/10/05	HMW-38 02/21/06	HMW-38 08/24/06	HMW-38 12/15/06	HMW-38 09/11/07	HMW-39 02/20/04	HMW-39 08/02/04	HMW-39 04/08/05	HMW-39 08/09/05	HMW-39 02/15/06
Potassium, Dissolved	mg/L	NA	90.5	102	NA	NA	121 [122]	NA	NA	NA	115 [114]
Selenium, Dissolved	mg/L	<0.0100	0.045	0.041	NA	NA	0.126 [0.100]	<0.0100 [<0.0100]	0.118 [0.122]	<0.0100 [<0.0100]	0.0700 [0.0770]
Silver, Dissolved	mg/L	<0.00200	<0.00200	<0.00200	<0.00200	NA	<0.0130 [<0.0130]	<0.00300 [<0.00300]	<0.0130 [<0.0130]	<0.00200 [<0.00200]	<0.00200 [<0.00200]
Sodium, Dissolved	mg/L	2,160	1,800	1,840	2,320	NA	3,080 [3,110]	NA	3,290 [3,320]	3,590 [3,450]	3,140 [3,110]
Strontium, Dissolved	mg/L	8.38	5.19	4.2	NA	NA	5.86 [5.92]	6.75 [6.62]	13.3 [13.1]	11.3 [11.2]	4.64 [4.62]
Tin, Dissolved	mg/L	<0.0250	0.028	<0.0250	NA	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
Vanadium, Dissolved	mg/L	0.07	0.063	0.015	NA	NA	0.0360 [0.0260]	0.0360 [0.0360]	0.0350 [0.0330]	0.0300 [0.0350]	<0.00500 [<0.00500]
Zinc, Dissolved	mg/L	<0.00500	0.013	<0.00500	<0.00500	NA	<0.0250 [<0.0250]	0.0160 [0.0130]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	0.0100 [0.00900]
Parameters											
ALKALINITY	mg/L	162	162	156	154	172	178 [178]	176 [174]	186 [190]	174 [170]	174 [160]
Alkalinity, Bicarbonate	mg/L	162	162	156	154	172	178 [178]	176 [174]	186 [190]	174 [170]	174 [160]
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]
Ammonia	mg/L	<1.00	<1.00	<1.00	<1.00	NA	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]
Bromide	mg/L	1.05	1	<0.200	1.87	1.07	1.64 [1.64]	<0.200 [<0.200]	1.51 [1.51]	1.49 [1.47]	1.39 [1.40]
Chloride (CL)	mg/L	1,190	1,090	1,100	1,530	1,210	2,190 [2,240]	2,160 [2,160]	2,240 [2,080]	1,940 [2,020]	2,130 [1,960]
CONDUCTIVITY	mS/cm	12.9	11.8	12.1	12.3	11.5	19.5	18.7	19.7 [19.7]	17.6 [17.6]	16.1 [16.1]
CONDUCTIVITY	umhos/cm	13,000	12,100	10,800	12,100	11,900	19,400 [18,900]	18,300 [16,300]	18,000 [18,000]	18,100 [18,100]	17,100 [17,000]
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/L	3.2	3.18	3.56	4.01	2.77	<0.200 [<0.200]	0.264 [0.281]	3.33 [3.28]	3.23 [3.26]	3.41 [3.40]
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]
Nitrate	mg/L	40.3	37.6	37.7	71.2	NA	73.8 [74.0]	71.6 [71.6]	71.4 [66.2]	64.3 [65.8]	64.2 [61.3]
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	61.8	NA	NA	NA	NA	NA
Nitrite	mg/L	<0.100	<0.100	<0.200	<1.00	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]
PERCHLORATE	mg/L	NA	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	<0.0100 [<0.0100]
pH	pH Units	7.72	7.61	8.05	7.67	7.59	7.60 [7.60]	7.56 [7.55]	7.70 [7.68]	7.57 [7.57]	7.82 [7.79]
Phosphorus	mg/L	0.295	<0.0500	<0.0500	<0.0500	NA	0.167 [0.120]	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0500 [<0.0500]
SILICA	mg/L	35.4	36	28	NA	NA	30.6 [32.5]	33.5 [33.4]	26.2 [25.1]	16.9 [21.3]	35.7 [32.7]
Silica, Dissolved	mg/L	33.8	34.8	27.6	NA	NA	24.6 [20.1]	32.7 [32.8]	25.2 [24.6]	16.0 [23.5]	32.5 [32.5]
Sulfate	mg/L	6,120	5,980	5,230	6,840	5,280	9,350 [8,990]	8,740 [8,900]	9,110 [8,730]	7,930 [10,100]	8,670 [7,780]
Temperature	deg c	27.9	19.8	26.6	19.1	21.9	18.9	21.6	24.3 [24.3]	28.2 [28.2]	21.6 [21.6]
TKN	mg/L	<4.00	<4.00	<4.00	NA	NA	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [4.76]	<4.00 [<4.00]	<4.00 [<4.00]
Total Dissolved Solids	mg/L	11,300	11,300	8,980	10,800	10,800	17,800 [17,800]	17,500 [17,000]	17,300 [20,700]	16,200 [16,400]	16,100 [17,100]
TOTAL ORGANIC CARBON	mg/L	3.95	1.3	1.6	NA	1.93	2.68 [2.84]	1.59 [1.76]	1.55 [<1.00]	2.68 [3.34]	2.90 [2.00]
SVOCs											
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1-Methylnaphthalene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	0.037	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0 [<20.0]	<20.0 [<20.0]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,6-DICHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Butoxy Ethanol	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Methyl pyridine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	0.0708	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Methylphenol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Naphthylamine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-38 08/10/05	HMW-38 02/21/06	HMW-38 08/24/06	HMW-38 12/15/06	HMW-38 09/11/07	HMW-39 02/20/04	HMW-39 08/02/04	HMW-39 04/08/05	HMW-39 08/09/05	HMW-39 02/15/06
2-NITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3-Methylphenol	mg/L	NA	NA	NA	NA	NA	<5.00 [<5.00]	NA	<0.00500 [<0.00500]	NA	NA
3-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-Methyl Phenol	mg/L	NA	NA	NA	NA	NA	<5.00 [<5.00]	NA	<0.00500 [<0.00500]	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-NITROPHENOL	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00 [<5.00]	<5.00 [<5.00]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Acenaphthene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ACETOPHENONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Aniline	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZIDINE	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<15.0 [<15.0]	<15.0 [<15.0]	<0.0100 [<0.0100]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZOIC ACID	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0 [<20.0]	<20.0 [<20.0]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00673 [0.0186]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<10.0 [<10.0]	<10.0 [<10.0]	<0.0100 [<0.0100]	<0.0500 [<0.0500]	<0.00500 [<0.00500]
CHLOROPHENOLS	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIBENZOFURAN	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Diphenylhydrazine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
FLUORANTHENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
FLUORENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
m,p-Cresol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00 [<5.00]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
NITROBENZENE	mg/L	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.000500 [<0.00500]	<0.00500 [<0.00500]
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-38 08/10/05	HMW-38 02/21/06	HMW-38 08/24/06	HMW-38 12/15/06	HMW-38 09/11/07	HMW-39 02/20/04	HMW-39 08/02/04	HMW-39 04/08/05	HMW-39 08/09/05	HMW-39 02/15/06
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PENTACHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
PHENACETIN	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PHENANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
P-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PROPYZAMIDE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PYRENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PYRIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
TPHs											
DRO	mg/L	<50.0	<50.0	<5.00	<5.00	<5.00	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]
GRO	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	0.216 [0.224]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs											
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00155 [0.00135]	0.00159 [0.00165]	0.00170 [0.00166]	<0.00100 [0.00155]	0.00131 [0.00129]
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,4-Dioxane	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROFORM	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00101 [0.00100]	0.00103 [0.00111]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROMETHANE	mg/L	<0.00100	0.00318	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00334 [0.00149]
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
M-DINITROBENZENE	mg/L	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-38 08/10/05	HMW-38 02/21/06	HMW-38 08/24/06	HMW-38 12/15/06	HMW-38 09/11/07	HMW-39 02/20/04	HMW-39 08/02/04	HMW-39 04/08/05	HMW-39 08/09/05	HMW-39 02/15/06
METHYL N-BUTYL KETONE	mg/L	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TRICHLOROETHYLENE	mg/L	0.00981	0.01	0.00988	0.0056	0.0118	0.0634 [0.0633]	0.0671 [0.0677]	0.0654 [0.0653]	0.0575 [0.0582]	0.0495 [0.0495]
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-39 08/28/06	HMW-39 12/20/06	HMW-39 09/12/07	HMW-40 02/20/04	HMW-40 07/22/04	HMW-40 04/05/05	HMW-40 08/09/05	HMW-40 02/15/06	HMW-40 08/22/06	HMW-40 12/14/06	HMW-40 09/11/07	HMW-41 02/20/04	HMW-41 07/22/04	HMW-41 04/05/05
Explosives															
2,4,6-TRINITROTOLUENE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	<0.000500
2-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	<0.000500
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA
4-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
RDX	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
Metals															
ALUMINUM	mg/L	<0.0300 [0.148]	NA	NA	2.39	0.392	<0.100	<0.0300	<0.0300	<0.0300	NA	NA	2.07	<0.100	<0.100
ANTIMONY	mg/L	NA	NA	<0.0500 [<0.0500]	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA
ARSENIC	mg/L	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	NA	<0.00500	<0.0100	<0.00500	<0.00500
BARIUM	mg/L	0.0120 [0.0100]	<0.0100	<0.0100 [<0.0100]	<0.100	0.023	0.015	<0.0100	0.018	<0.0100	NA	0.012	<0.100	0.013	<0.0100
BERYLLIUM	mg/L	<0.00250 [<0.00250]	NA	<0.00250 [<0.00250]	0.01	<0.00250	<0.00250	<0.00250	0.006	<0.00250	NA	<0.00250	0.009	<0.00250	<0.00250
BORON	mg/L	5.96 [5.25]	NA	NA	6	5.11	4.98	0.517	4.83	3.66	NA	NA	3.05	2.92	2.34
CADMIUM	mg/L	<0.00100 [0.0530]	0.003	<0.00200 [<0.00200]	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	<0.00500	<0.00100	<0.00100
CALCIUM METAL	mg/L	412 [474]	NA	NA	NA	NA	NA	NA	542	516	NA	NA	NA	NA	NA
Chromium	mg/L	0.165 [0.172]	0.168	0.157 [0.158]	<0.0100	0.007	<0.00500	<0.0100	0.017	<0.00500	<0.00500	<0.00500	1.37	1.28	0.769
COBALT	mg/L	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.0200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.0200	<0.00500	<0.00500
COPPER	mg/L	0.00500 [0.0300]	<0.00500	0.00900 [<0.00500]	0.041	<0.00500	0.207	0.028	<0.00500	<0.00500	<0.00500	<0.00500	0.033	0.031	<0.00500
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	NA	NA	NA	0.055	0.023	<0.0100	<0.0100	NA	NA	NA	NA	1.61	1.46	1.15
Iron	mg/L	<0.0100 [0.125]	NA	NA	1.26	0.157	0.144	<0.0100	<0.0100	0.249	NA	NA	1.61	0.123	<0.0500
LEAD	mg/L	<0.00500 [0.0980]	<0.00500	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500
LITHIUM	mg/L	0.595 [0.400]	NA	NA	NA	NA	NA	NA	0.938	0.144	NA	NA	NA	NA	NA
MAGNESIUM	mg/L	629 [689]	NA	NA	NA	NA	NA	NA	1,470	950	NA	NA	NA	NA	NA
MANGANESE	mg/L	<0.00500 [<0.00500]	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250
MERCURY	mg/L	<0.000200 [<0.000200]	<0.000200	<0.000200 [<0.000200]	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.634 [0.560]	NA	NA	1.35	1.33	1.12	0.135	0.952	0.858	NA	NA	0.412	0.464	0.333
NICKEL	mg/L	<0.0100 [0.0200]	NA	<0.00500 [<0.00500]	<0.0250	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	NA	<0.00500	<0.0250	0.012	<0.00500
POTASSIUM	mg/L	110 [118]	NA	NA	NA	NA	NA	NA	250	155	NA	NA	NA	NA	NA
SELENIUM	mg/L	0.0750 [0.0660]	<0.0100	0.0440 [0.0520]	0.539	0.208	0.222	<0.0100	0.235	0.092	NA	0.113	0.369	0.194	0.156
SILVER	mg/L	<0.00200 [<0.00200]	<0.00200	<0.00500 [<0.00500]	<0.0125	<0.00300	<0.00300	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.0125	<0.00300	<0.00300
SODIUM	mg/L	3,160 [3,340]	3,990	NA	NA	NA	NA	NA	6,470	3,870	4,760	NA	NA	NA	NA
STRONTIUM	mg/L	10.4 [8.72]	NA	NA	8.42	9.5	19.9	1.71	5.72	4.79	NA	NA	7.95	9	14
THALLIUM	mg/L	NA	NA	<0.0500 [<0.0500]	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA
TIN	mg/L	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	0.119	<0.0250	<0.0250	<0.0250	0.034	<0.0250	NA	<0.0250	0.16	<0.0250	<0.0250
Total Cyanide	mg/L	NA	NA	<0.0100 [<0.0100]	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	<0.0100	NA	<0.0100
VANADIUM (FUME OR DUST)	mg/L	0.0350 [0.0300]	NA	0.0340 [0.0340]	0.032	<0.00500	0.011	<0.00500	<0.00500	<0.00500	NA	0.006	0.044	0.025	0.008
ZINC	mg/L	0.0190 [0.560]	<0.00500	0.0130 [0.0140]	<0.0250	<0.0100	<0.00500	<0.00500	0.01	0.005	<0.00500	<0.0100	<0.0250	0.01	<0.00500
Metals-Dissolved															
Aluminum, Dissolved	mg/L	<0.0300 [<0.0300]	NA	NA	1.3	<0.0500	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	1.2	<0.0500	<0.0500
Arsenic, Dissolved	mg/L	<0.00500 [<0.00500]	<0.00500	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.0100	<0.00500	<0.00500
Barium, Dissolved	mg/L	<0.0100 [<0.0100]	<0.0100	NA	<0.100	0.022	0.014	<0.0100	0.018	0.01	NA	NA	<0.100	0.012	<0.0100
Beryllium, Dissolved	mg/L	<0.00250 [<0.00250]	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	NA	NA	<0.00250	<0.00250	<0.00250
Boron, Dissolved	mg/L	4.56 [4.61]	NA	NA	3.28	5.31	4.98	5.12	4.44	3.8	NA	NA	1.75	2.98	2.34
Cadmium, Dissolved	mg/L	<0.00100 [<0.00100]	<0.00100	NA	<0.0250	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	<0.0250	<0.00100	<0.00100
Calcium, Dissolved	mg/L	420 [415]	NA	NA	465	476	518	542	523	502	NA	NA	440	415	436
Chromium, Dissolved	mg/L	0.124 [0.121]	0.158	NA	<0.0100	0.005	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	0.776	1.3	0.754
Cobalt, Dissolved	mg/L	<0.00500 [<0.00500]	NA	NA	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250	<0.00500	<0.00500
Copper, Dissolved	mg/L	<0.0125 [<0.0125]	<0.0125	NA	<0.0125	<0.0125	0.096	0.026	<0.0125	<0.0125	<0.0125	NA	<0.0125	0.028	<0.0125
Dissolved Mercury	mg/L	NA	<0.000200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron, Dissolved	mg/L	0.0100 [0.0120]	NA	NA	0.702	<0.0500	<0.0500	<0.0100	<0.0100	0.011	NA	NA	0.906	<0.0500	<0.0500
Lead, Dissolved	mg/L	<0.00500 [<0.00500]	<0.00500	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.00500
Lithium, Dissolved	mg/L	0.130 [0.132]	NA	NA	0.565	1.76	1.34	<0.00500	0.878	0.154	NA	NA	0.515	1.53	1.11
Magnesium, Dissolved	mg/L	641 [637]	NA	NA	1,310	1,570	1,220	915	1,310	893	NA	NA	949	986	934
Manganese, Dissolved	mg/L	<0.0250 [<0.0250]	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250
Molybdenum, Dissolved	mg/L	0.509 [0.517]	NA	NA	0.706	1.38	1.02	0.126	0.949	0.887	NA	NA	0.228	0.467	0.31
Nickel, Dissolved	mg/L	<0.00500 [<0.00500]	NA	NA	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250	0.011	<0.00500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-39 08/28/06	HMW-39 12/20/06	HMW-39 09/12/07	HMW-40 02/20/04	HMW-40 07/22/04	HMW-40 04/05/05	HMW-40 08/09/05	HMW-40 02/15/06	HMW-40 08/22/06	HMW-40 12/14/06	HMW-40 09/11/07	HMW-41 02/20/04	HMW-41 07/22/04	HMW-41 04/05/05
Potassium, Dissolved	mg/L	109 [112]	NA	NA	221	NA	NA	NA	209	146	NA	NA	137	NA	NA
Selenium, Dissolved	mg/L	0.0580 [0.0480]	0.057	NA	0.196	0.263	0.217	<0.0100	0.226	0.079	NA	NA	0.122	0.199	0.15
Silver, Dissolved	mg/L	<0.00200 [<0.00200]	<0.00200	NA	<0.0130	<0.00300	<0.00300	<0.00200	<0.00200	<0.00200	<0.00200	NA	<0.0130	<0.00300	<0.00300
Sodium, Dissolved	mg/L	2,840 [3,200]	3,570	NA	6,060	NA	5,490	4,280	5,930	3,680	6,330	NA	3,660	NA	4,030
Strontium, Dissolved	mg/L	3.72 [3.74]	NA	NA	8.36	9.86	19.7	1.7	6.68	5.04	NA	NA	7.01	9.22	14
Tin, Dissolved	mg/L	<0.0250 [<0.0250]	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	0.034	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	0.00500 [<0.00500]	NA	NA	<0.0250	<0.00500	0.011	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250	0.024	0.008
Zinc, Dissolved	mg/L	0.00500 [0.00600]	<0.00500	NA	<0.0250	<0.0100	<0.0100	<0.00500	0.01	<0.00500	<0.00500	NA	<0.0250	<0.0100	<0.0100
Parameters															
ALKALINITY	mg/L	174 [172]	170	170 [168]	130	132	128	130	136	138	134	138	234	256	224
Alkalinity, Bicarbonate	mg/L	174 [172]	170	170 [168]	130	132	128	130	136	138	134	138	234	256	224
Alkalinity, Carbonate	mg/L	<1.00 [<1.00]	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00 [<1.00]	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	<1.00	<1.00	<1.00
Bromide	mg/L	<0.200 [<0.200]	1.77	1.27 [1.26]	4.42	4.23	3.3	4.1	3.81	2.06	2.42	1.7	2.01	<0.200	<0.200
Chloride (CL)	mg/L	1,880 [1,810]	1,780	1,620 [1,680]	6,640	6,430	5,110	6,250	5,420	3,440	3,680	3,170	3,250	3,060	3,380
CONDUCTIVITY	mS/cm	16.1	16.1	14.7	34	NA	32.7	34	31	20.9	22.5	19.6	22.8	NA	25
CONDUCTIVITY	umhos/cm	15,600 [15,600]	16,000	15,600 [15,600]	34,100	35,200	28,800	33,600	31,200	19,100	22,500	21,300	22,500	21,300	22,400
Dissolved Phosphorus	mg/L	NA	<0.0229	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/L	3.01 [<0.200]	5.64	3.35 [3.29]	4.32	<0.200	5.69	5.58	5.6	<0.200	7.72	4.69	<0.200	<0.200	2.63
Hydroxide Alkalinity	mg/L	<1.00 [<1.00]	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	61.8 [59.7]	61.2	NA	173	177	134	159	141	88.4	93	NA	97	96.3	94.5
Nitrate + Nitrite	mg/L	NA	NA	52.8 [49.8]	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA
Nitrite	mg/L	<0.200 [<0.200]	<1.00	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.200	<1.00	NA	<0.100	<0.100	<0.100
PERCHLORATE	mg/L	<0.0100 [<0.0100]	NA	NA	NA	NA	NA	NA	0.0044	<0.0100	NA	NA	NA	NA	NA
pH	pH Units	7.79 [7.80]	7.59	7.55 [7.53]	7.6	7.6	7.78	7.57	7.75	7.9	7.66	7.7	7.5	7.35	7.5
Phosphorus	mg/L	<0.0500 [<0.0500]	<0.0500	NA	0.174	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	0.09	NA	<0.0500
SILICA	mg/L	36.5 [32.1]	NA	NA	20.7	12.4	11.2	1.84	13	11.1	NA	NA	36.5	30.4	20.1
Silica, Dissolved	mg/L	25.3 [25.5]	NA	NA	10.7	13.1	11.2	1.51	12.6	11.4	NA	NA	22.1	32.5	19.7
Sulfate	mg/L	8,230 [800]	8,450	6,820 [7,170]	12,800	12,000	11,800	12,300	11,200	10,800	11,100	8,660	9,600	9,380	9,810
Temperature	deg c	24	17.9	22.4	20.1	NA	20.8	28.2	20.9	23.5	20.3	21.8	19.8	NA	19.9
TKN	mg/L	4.76 [<4.00]	NA	NA	<4.00	<4.00	<4.00	5.32	<4.00	<4.00	NA	NA	<4.00	<4.00	<4.00
Total Dissolved Solids	mg/L	12,900 [12,700]	14,600	13,900 [14,100]	32,900	34,700	26,800	30,900	30,700	17,900	21,400	18,800	20,600	21,000	20,900
TOTAL ORGANIC CARBON	mg/L	1.70 [1.70]	NA	2.07 [2.03]	4.38	5.18	2.75	3.76	2.9	2.5	NA	2.4	3.34	2.45	2.03
SVOCs															
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<5.00	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1-Methylnaphthalene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
2,4-DICHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
2,6-DINITROTOLUENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Butoxy Ethanol	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Methyl pyridine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Methylphenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Naphthylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-39 08/28/06	HMW-39 12/20/06	HMW-39 09/12/07	HMW-40 02/20/04	HMW-40 07/22/04	HMW-40 04/05/05	HMW-40 08/09/05	HMW-40 02/15/06	HMW-40 08/22/06	HMW-40 12/14/06	HMW-40 09/11/07	HMW-41 02/20/04	HMW-41 07/22/04	HMW-41 04/05/05
2-NITROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	<5.00	NA	<0.00500
3-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-Aminobiphenyl	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	<5.00	NA	<0.00500
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250 [<0.0250]	<0.0250	<0.0250 [<0.0250]	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Acenaphthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ACETOPHENONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Aniline	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BENZIDINE	mg/L	<0.0250 [<0.0250]	<0.0250	<0.0250 [<0.0250]	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100
Benzo(a)anthracene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(a)pyrene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BENZOIC ACID	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.168	<20.0	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	0.00909	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	1	<5.00	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100
CHLOROPHENOLS	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
CYMENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIBENZOFURAN	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIPHENYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Diphenylhydrazine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
FLUORANTHENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
FLUORENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
m,p-Cresol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00	NA
M-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<5.00	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
NITROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.000500 [<0.00500]	<5.00	<0.000500	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500	<5.00	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-39 08/28/06	HMW-39 12/20/06	HMW-39 09/12/07	HMW-40 02/20/04	HMW-40 07/22/04	HMW-40 04/05/05	HMW-40 08/09/05	HMW-40 02/15/06	HMW-40 08/22/06	HMW-40 12/14/06	HMW-40 09/11/07	HMW-41 02/20/04	HMW-41 07/22/04	HMW-41 04/05/05
P-CHLOROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
PHENACETIN	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PHENANTHRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.00571	<5.00	<0.00500
P-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PROPYZAMIDE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PYRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PYRIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
TPHs															
DRO	mg/L	<5.00 [<5.00]	<5.00	<5.00 [<5.00]	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<50.0	<50.0	<50.0
GRO	mg/L	<0.100 [<0.100]	<0.100	0.208 [<0.100]	0.197	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	0.281	0.102	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs															
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00109
1,1-DICHLOROETHYLENE	mg/L	0.00145 [0.00145]	0.00129	0.00134 [0.00133]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00515
1,1-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200
1,2-Dibromoethane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<5.00	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BROMOBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100
CARBON DISULFIDE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00198
CHLOROMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-39 08/28/06	HMW-39 12/20/06	HMW-39 09/12/07	HMW-40 02/20/04	HMW-40 07/22/04	HMW-40 04/05/05	HMW-40 08/09/05	HMW-40 02/15/06	HMW-40 08/22/06	HMW-40 12/14/06	HMW-40 09/11/07	HMW-41 02/20/04	HMW-41 07/22/04	HMW-41 04/05/05
METHYL N-BUTYL KETONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100
METHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.0521 [0.0527]	0.0546	0.0430 [0.0461]	<0.00100	0.001	0.00149	0.00139	<0.00100	0.00117	<0.00100	<0.00100	0.131	0.202	0.205
Vinyl Chloride	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-41 08/09/05	HMW-41 02/13/06	HMW-41 08/22/06	HMW-41 12/14/06	HMW-41 09/11/07	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08	HMW-53 12/07/06
Explosives																	
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
2,6-DNT / 2,4-DNT	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	0.000702	NA	0.000939	0.00063	0.000897	NA	<0.000500	<0.000500	NA	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
3-NITROTOLUENE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
4-NITROTOLUENE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
RDX	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
TETRYL	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
Metals																	
ALUMINUM	mg/L	0.107	NA	0.074	NA	NA	1.86	0.52	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	NA
ANTIMONY	mg/L	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0200	NA
ARSENIC	mg/L	<0.00500	NA	<0.0100	NA	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	NA
BARIUM	mg/L	0.011	NA	0.013	NA	0.011	<0.100	<0.100	0.012	0.011	0.017	<0.0100	<0.0100	0.01	0.01	0.01	NA
BERYLLIUM	mg/L	<0.00250	NA	<0.00250	NA	<0.00250	<0.00250	0.004	<0.00250	<0.00250	0.008	<0.00250	NA	<0.00250	<0.00200	<0.00200	NA
BORON	mg/L	2.6	NA	3.06	NA	NA	4.67	4.49	3.95	4.03	3.46	2.75	NA	NA	NA	NA	NA
CADMIUM	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00200	<0.00500	<0.00500	<0.00100	<0.00100	0.007	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200	<0.00100
CALCIUM METAL	mg/L	NA	NA	474	NA	NA	NA	NA	NA	NA	493	569	NA	NA	NA	NA	NA
Chromium	mg/L	0.794	NA	0.785	0.801	0.635	<0.0100	<0.0100	<0.0100	<0.0100	0.02	<0.00500	<0.00500	<0.00500	0.008	<0.00500	<0.00500
COBALT	mg/L	<0.00500	NA	<0.00500	NA	<0.00500	<0.0200	<0.0200	<0.0200	<0.00500	0.006	<0.00500	NA	<0.00500	<0.00200	<0.00200	NA
COPPER	mg/L	<0.00500	NA	0.008	<0.00500	<0.00500	<0.0125	0.028	0.011	<0.00500	0.005	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.006
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	1.26	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	0.079	NA	0.041	NA	NA	1.14	0.365	<0.0100	0.017	0.014	<0.0100	NA	NA	NA	NA	NA
LEAD	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	0.502	NA	NA	NA	NA	NA	NA	0.813	0.175	NA	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	986	NA	NA	NA	NA	NA	NA	414	467	NA	NA	NA	NA	NA
MANGANESE	mg/L	<0.0250	NA	<0.0250	NA	NA	0.026	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA
MERCURY	mg/L	<0.000200	NA	<0.000200	NA	0.00022	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA
MOLYBDENUM	mg/L	0.364	NA	0.447	NA	NA	0.242	0.239	0.158	0.226	0.21	0.205	NA	NA	NA	NA	NA
NICKEL	mg/L	<0.0100	NA	<0.00500	NA	<0.00500	<0.0250	<0.0250	<0.0100	<0.0100	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	NA
POTASSIUM	mg/L	NA	NA	80.4	NA	NA	NA	NA	NA	NA	97.4	87.2	NA	NA	NA	NA	NA
SELENIUM	mg/L	<0.0100	NA	0.124	NA	0.108	<0.0500	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0100	0.031	NA
SILVER	mg/L	<0.00200	NA	<0.00200	<0.00200	<0.00500	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00200
SODIUM	mg/L	NA	NA	5,310	4,970	NA	NA	NA	NA	NA	686	959	1,190	NA	NA	NA	9,100
STRONTIUM	mg/L	22.3	NA	15.1	NA	NA	5.15	5.05	11.2	8.8	5.31	4.6	NA	NA	NA	NA	NA
THALLIUM	mg/L	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0500	NA
TIN	mg/L	<0.0250	NA	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.100	NA
Total Cyanide	mg/L	NA	NA	NA	NA	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/L	0.022	NA	0.018	NA	0.019	0.026	0.025	<0.0250	0.026	0.048	0.013	NA	0.02	0.022	0.018	NA
ZINC	mg/L	<0.00500	NA	0.036	<0.00500	<0.0100	<0.0250	<0.0250	<0.00500	<0.00500	0.014	0.019	<0.00500	<0.0100	<0.00700	<0.00500	<0.00500
Metals-Dissolved																	
Aluminum, Dissolved	mg/L	<0.0300	NA	<0.0300	NA	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	<0.00500	NA	<0.00500	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA
Barium, Dissolved	mg/L	0.01	NA	<0.0100	NA	NA	<0.100	0.014	0.01	0.011	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA
Beryllium, Dissolved	mg/L	<0.00250	NA	<0.00250	NA	NA	<0.00250	<0.00250	0.011	<0.00250	0.008	<0.00250	NA	NA	NA	NA	NA
Boron, Dissolved	mg/L	2.07	NA	2.11	NA	NA	4.53	5.02	3.81	4.02	3.41	2.87	NA	NA	NA	NA	NA
Cadmium, Dissolved	mg/L	<0.00100	NA	<0.00100	<0.00100	NA	<0.0250	<0.00100	<0.00100	<0.00100	0.007	<0.00100	<0.00100	NA	NA	NA	<0.00100
Calcium, Dissolved	mg/L	515	NA	468	NA	NA	422	467	503	512	468	509	NA	NA	NA	NA	NA
Chromium, Dissolved	mg/L	0.695	NA	0.587	0.682	NA	<0.0100	<0.00500	<0.0100	<0.00500	0.019	<0.00500	<0.00500	NA	NA	NA	<0.00500
Cobalt, Dissolved	mg/L	<0.00500	NA	<0.00500	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.006	<0.00500	NA	NA	NA	NA	NA
Copper, Dissolved	mg/L	<0.0125	NA	<0.0125	<0.0125	NA	<0.0125	0.035	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	NA	NA	NA	<0.0125
Dissolved Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000200	NA	NA	NA	NA
Iron, Dissolved	mg/L	<0.0100	NA	0.018	NA	NA	<0.0500	<0.0500	<0.0100	<0.0100	0.012	0.012	NA	NA	NA	NA	NA
Lead, Dissolved	mg/L	<0.00500	NA	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.00500
Lithium, Dissolved	mg/L	0.83	NA	0.178	NA	NA	0.451	0.908	0.805	0.47	0.807	0.176	NA	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	1,010	NA	958	NA	NA	354	401	405	421	394	410	NA	NA	NA	NA	NA
Manganese, Dissolved	mg/L	<0.0250	NA	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	0.293	NA	0.35	NA	NA	0.234	0.282	0.146	0.216	0.21	0.207	NA	NA	NA	NA	NA
Nickel, Dissolved	mg/L	<0.00500	NA	<0.00500	NA	NA	<0.0250	0.009	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-41 08/09/05	HMW-41 02/13/06	HMW-41 08/22/06	HMW-41 12/14/06	HMW-41 09/11/07	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08	HMW-53 12/07/06
Potassium, Dissolved	mg/L	NA	NA	127	NA	NA	92.5	NA	NA	NA	106	105	NA	NA	NA	NA	NA
Selenium, Dissolved	mg/L	<0.0100	NA	0.111	NA	NA	<0.0500	<0.0100	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA
Silver, Dissolved	mg/L	<0.00200	NA	<0.00200	<0.00200	NA	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	NA	NA	<0.00200
Sodium, Dissolved	mg/L	4,270	NA	3,390	5,220	NA	832	NA	652	910	677	704	997	NA	NA	NA	10,900
Strontium, Dissolved	mg/L	15	NA	5.43	NA	NA	5.01	5.24	10.1	7.01	5.27	4.5	NA	NA	NA	NA	NA
Tin, Dissolved	mg/L	<0.0250	NA	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA
Vanadium, Dissolved	mg/L	0.021	NA	<0.00500	NA	NA	<0.0250	0.022	<0.0250	<0.00500	0.048	<0.00500	NA	NA	NA	NA	NA
Zinc, Dissolved	mg/L	<0.00500	NA	0.006	<0.00500	NA	<0.0250	0.013	<0.0250	<0.00500	0.014	0.008	<0.00500	NA	NA	NA	<0.00500
Parameters																	
ALKALINITY	mg/L	228	NA	220	220	212	142	146	156	158	164	158	154	156	144	150	184
Alkalinity, Bicarbonate	mg/L	228	NA	220	220	212	142	146	156	158	164	158	154	156	144	150	184
Alkalinity, Carbonate	mg/L	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	NA	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	<1.00
Bromide	mg/L	<0.200	NA	<0.200	2.26	1.64	0.7	<0.200	0.62	0.69	<0.200	<0.200	<1.00	0.52	NA	NA	6.65
Chloride (CL)	mg/L	3,500	NA	3,820	3,590	3,090	476	462	352	418	447	444	595	422	297	424	11,000
CONDUCTIVITY	mS/cm	22.5	21.4	21.8	21.7	19.9	8.14	NA	7.41	7.47	6.67	7.07	7.39	7.07	6.28	7.02	47.1
CONDUCTIVITY	umhos/cm	23,100	NA	20,200	21,400	21,000	8,310	7,780	6,610	7,600	6,980	6,590	73,500	7,420	6,400	6,800	46,500
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0229	NA	NA	NA	NA
FLUORIDE	mg/L	2.63	NA	<0.200	3.36	2.68	3.35	3.35	3.21	3.35	3.42	4.13	4.01	4.02	4.29	4.35	3.37
Hydroxide Alkalinity	mg/L	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	99.4	NA	114	99.4	NA	13.6	13	9.66	16.8	82.8	14.3	24.7	NA	NA	NA	301
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA	NA	9.98	11.4	131	NA
Nitrite	mg/L	<0.100	NA	<0.200	<1.00	NA	<0.100	<0.100	<0.100	<0.100	<0.200	<0.200	<1.00	NA	NA	NA	<0.500
PERCHLORATE	mg/L	NA	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	NA	NA	NA	NA	NA
pH	pH Units	7.44	7.09	7.8	7.53	7.55	7.5	7.66	7.45	7.42	7.5	8.04	7.62	7.48	7.41	7.37	7.5
Phosphorus	mg/L	<0.0500	NA	0.056	0.069	NA	<0.0500	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	0.099
SILICA	mg/L	24.1	NA	32.4	NA	NA	29.5	26.1	28.3	25.2	34.4	29.2	NA	NA	NA	NA	NA
Silica, Dissolved	mg/L	18	NA	22.4	NA	NA	29.2	32	27.3	23.8	34.2	30	NA	NA	NA	NA	NA
Sulfate	mg/L	10,100	NA	10,500	11,600	9,250	4,680	4,360	3,640	4,120	3,920	4,080	4,570	4,490	3,670	4,100	17,500
Temperature	deg c	24.8	18.9	22.1	19.5	20.6	21.4	NA	23.8	28.1	19.8	24.5	18.9	25.1	23	23.2	18.2
TKN	mg/L	5.04	NA	<4.00	NA	NA	<4.00	<4.00	<4.00	<4.00	<4.00	4.2	NA	NA	NA	NA	NA
Total Dissolved Solids	mg/L	21,000	NA	19,000	20,600	18,200	7,500	7,630	6,420	7,130	5,880	6,090	6,540	7,230	6,160	6,440	48,800
TOTAL ORGANIC CARBON	mg/L	3.55	2	2.5	NA	2.44	1.99	<1.00	1.04	12.1	1.3	1.1	NA	1.88	1.18	NA	NA
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500
2-CHLORONAPHTHALENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-41 08/09/05	HMW-41 02/13/06	HMW-41 08/22/06	HMW-41 12/14/06	HMW-41 09/11/07	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08	HMW-53 12/07/06
2-NITROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	NA	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	<0.0250	NA	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.0500	NA	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	<0.000500	NA	<0.00500	<0.00500	<0.000500	<5.00	<5.00	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500	<0.000500	<0.00500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-41 08/09/05	HMW-41 02/13/06	HMW-41 08/22/06	HMW-41 12/14/06	HMW-41 09/11/07	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08	HMW-53 12/07/06
P-CHLOROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TPHs																	
DRO	mg/L	<50.0	NA	<5.00	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
GRO	mg/L	<0.100	NA	0.173	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	NA	0.00116	0.0011	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	0.00467	NA	0.00496	0.0044	0.00398	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00200	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00100	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	0.00125	NA	0.00171	0.00158	0.00137	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	0.00191	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	0.0419	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500
Isopropylbenzene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-41 08/09/05	HMW-41 02/13/06	HMW-41 08/22/06	HMW-41 12/14/06	HMW-41 09/11/07	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08	HMW-53 12/07/06
METHYL N-BUTYL KETONE	mg/L	<0.00100	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500
tert-Butylbenzene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.184	NA	0.208	0.182	0.141	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-53 09/17/07	HMW-53 04/07/08	HMW-53 08/28/08
Explosives				
2,4,6-TRINITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA
2,6-DNT / 2,4-DNT	mg/L	<0.000500 [<0.000500]	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA
3-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500 [<0.000500]	<0.000500	NA
4-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA
RDX	mg/L	<0.000500 [<0.000500]	<0.000500	NA
TETRYL	mg/L	<0.000500 [<0.000500]	<0.000500	NA
Metals				
ALUMINUM	mg/L	NA	NA	NA
ANTIMONY	mg/L	<0.0500 [<0.0500]	<0.0200	<0.0200
ARSENIC	mg/L	<0.00500 [<0.00500]	0.0076	<0.0100
BARIUM	mg/L	0.0110 [0.0110]	0.0114	<0.00500
BERYLLIUM	mg/L	<0.00250 [<0.00250]	<0.00200	<0.00200
BORON	mg/L	NA	NA	NA
CADMIUM	mg/L	<0.00200 [<0.00200]	<0.00100	<0.00200
CALCIUM METAL	mg/L	NA	NA	NA
Chromium	mg/L	<0.00500 [<0.00500]	0.005	<0.00500
COBALT	mg/L	<0.00500 [<0.00500]	<0.00200	<0.00200
COPPER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
CYANIDE	mg/L	NA	NA	NA
Hexavalent Chromium	mg/L	NA	NA	NA
Iron	mg/L	NA	NA	NA
LEAD	mg/L	<0.0100 [<0.0100]	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA
MANGANESE	mg/L	NA	NA	NA
MERCURY	mg/L	<0.000200 [<0.000200]	<0.000200	<0.000200
MOLYBDENUM	mg/L	NA	NA	NA
NICKEL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
POTASSIUM	mg/L	NA	NA	NA
SELENIUM	mg/L	0.301 [0.295]	0.278	0.534
SILVER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
SODIUM	mg/L	NA	NA	NA
STRONTIUM	mg/L	NA	NA	NA
THALLIUM	mg/L	<0.0500 [<0.0500]	<0.0200	<0.0500
TIN	mg/L	<0.0250 [<0.0250]	<0.0250	<0.100
Total Cyanide	mg/L	<0.0100 [<0.0100]	NA	NA
VANADIUM (FUME OR DUST)	mg/L	0.00800 [0.00800]	0.01	<0.00500
ZINC	mg/L	<0.0100 [<0.0100]	<0.00700	0.025
Metals-Dissolved				
Aluminum, Dissolved	mg/L	NA	NA	NA
Arsenic, Dissolved	mg/L	NA	NA	NA
Barium, Dissolved	mg/L	NA	NA	NA
Beryllium, Dissolved	mg/L	NA	NA	NA
Boron, Dissolved	mg/L	NA	NA	NA
Cadmium, Dissolved	mg/L	NA	NA	NA
Calcium, Dissolved	mg/L	NA	NA	NA
Chromium, Dissolved	mg/L	NA	NA	NA
Cobalt, Dissolved	mg/L	NA	NA	NA
Copper, Dissolved	mg/L	NA	NA	NA
Dissolved Mercury	mg/L	NA	NA	NA
Iron, Dissolved	mg/L	NA	NA	NA
Lead, Dissolved	mg/L	NA	NA	NA
Lithium, Dissolved	mg/L	NA	NA	NA
Magnesium, Dissolved	mg/L	NA	NA	NA
Manganese, Dissolved	mg/L	NA	NA	NA
Molybdenum, Dissolved	mg/L	NA	NA	NA
Nickel, Dissolved	mg/L	NA	NA	NA

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-53 09/17/07	HMW-53 04/07/08	HMW-53 08/28/08
Potassium, Dissolved	mg/L	NA	NA	NA
Selenium, Dissolved	mg/L	NA	NA	NA
Silver, Dissolved	mg/L	NA	NA	NA
Sodium, Dissolved	mg/L	NA	NA	NA
Strontium, Dissolved	mg/L	NA	NA	NA
Tin, Dissolved	mg/L	NA	NA	NA
Vanadium, Dissolved	mg/L	NA	NA	NA
Zinc, Dissolved	mg/L	NA	NA	NA
Parameters				
ALKALINITY	mg/L	190 [184]	182	174
Alkalinity, Bicarbonate	mg/L	190 [184]	182	174
Alkalinity, Carbonate	mg/L	<1.00 [<1.00]	<1.00	<1.00
Ammonia	mg/L	NA	NA	NA
Bromide	mg/L	7.33 [7.27]	NA	NA
Chloride (CL)	mg/L	11,500 [12,100]	11,500	20,200
CONDUCTIVITY	mS/cm	44.5	45.2	48.7
CONDUCTIVITY	umhos/cm	46,900 [46,700]	46,000	44,600
Dissolved Phosphorus	mg/L	NA	NA	NA
FLUORIDE	mg/L	<0.200 [<0.200]	2.97	49.4
Hydroxide Alkalinity	mg/L	<1.00 [<1.00]	<1.00	<1.00
Nitrate	mg/L	NA	NA	NA
Nitrate + Nitrite	mg/L	300 [328]	177	686
Nitrite	mg/L	NA	NA	NA
PERCHLORATE	mg/L	NA	NA	NA
pH	pH Units	7.32 [7.32]	7.32	7.49
Phosphorus	mg/L	NA	NA	NA
SILICA	mg/L	NA	NA	NA
Silica, Dissolved	mg/L	NA	NA	NA
Sulfate	mg/L	16,700 [17,500]	16,400	33,300
Temperature	deg c	23.1	23	22.3
TKN	mg/L	NA	NA	NA
Total Dissolved Solids	mg/L	45,400 [46,400]	45,600	45,800
TOTAL ORGANIC CARBON	mg/L	11.9 [6.94]	5.5	NA
SVOCs				
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00500
1-Chloronaphthalene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Methylphenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-Naphthylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-53 09/17/07	HMW-53 04/07/08	HMW-53 08/28/08
2-NITROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	NA	NA
3-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250 [<0.0250]	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Acenaphthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
ACETOPHENONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Aniline	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
ANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZIDINE	mg/L	<0.0250 [<0.0250]	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZOIC ACID	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100
CYMENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
FLUORANTHENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
FLUORENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
m,p-Cresol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00500
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
NITROBENZENE	mg/L	<0.000500 [<0.00500]	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500 [<0.000500]	<0.000500	NA

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-53 09/17/07	HMW-53 04/07/08	HMW-53 08/28/08
P-CHLOROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100
PHENACETIN	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PHENANTHRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
P-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PYRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
PYRIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
TPHs				
DRO	mg/L	<5.00 [<5.00]	<5.00	<5.00
GRO	mg/L	<0.100 [<0.100]	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA
VOCs				
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00500
1,2-DICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
2-butanone	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
ACETONE	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
BENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CFC-11	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CFC-12	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA

Table E.10.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 143
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-53 09/17/07	HMW-53 04/07/08	HMW-53 08/28/08
METHYL N-BUTYL KETONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
MTBE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100

Notes for E.11.Attachments 1-3
Risk Assessment Datasets
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

<	=	Result is non-detect.
[ ]	=	Indicates field duplicate result.
deg c	=	Degrees Celsius
J	=	Laboratory qualifier, indicates estimated result.
ft	=	Foot.
mg/kg	=	Milligrams per kilogram.
mg/L	=	Milligrams per liter.
umhos/cm	=	micromhos per centimeter
mS/cm	=	microSiemens per centimeter
NA	=	Not available.
PCB	=	Polychlorinated biphenyl.
SVOC	=	Semi-volatile Organic Compound.
VOC	=	Volatile Organic Compound.

Table E.11.Attachment-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	144B1 10 02/10/92	HMW-07 10 02/22/92
Metals			
ARSENIC	mg/kg	1.70 [2.10]	0.71
BARIUM	mg/kg	67.0 [73.0]	100
CADMIUM	mg/kg	<1.10 [<1.00]	<2.50
LEAD	mg/kg	<11.0 [<10.0]	<25.0
MERCURY	mg/kg	<0.100 [<0.100]	<0.100
SELENIUM	mg/kg	<0.480 [<0.530]	<0.420
SILVER	mg/kg	<2.20 [<2.00]	<5.00
Parameters			
TPH	mg/kg	<13.0 [<14.0]	80
SVOCs			
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300
1,4-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300
2,4,6-Trichlorophenol	mg/kg	<0.300 [<0.300]	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.300 [<0.300]	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.300 [<0.300]	<0.300
2,4-DINITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300
2,6-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300
2-CHLORONAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300
2-CHLOROPHENOL	mg/kg	<0.330 [<0.330]	<0.330
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00 [<2.00]	<2.00
2-NITROPHENOL	mg/kg	<0.300 [<0.300]	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700 [<0.700]	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300 [<0.300]	<0.300
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.700 [<0.700]	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]	<0.0500
4-NITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00
Acenaphthene	mg/kg	<0.300 [<0.300]	<0.300
ACENAPHTHYLENE	mg/kg	<0.330 [<0.330]	<0.330
ANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300
BENZIDINE	mg/kg	<1.70 [<1.70]	<1.70
Benzo(a)anthracene	mg/kg	<0.300 [<0.300]	<0.300
Benzo(a)pyrene	mg/kg	<0.300 [<0.300]	<0.300
Benzo(b)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.300 [<0.300]	<0.300
Benzo(k)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300
BENZOIC ACID	mg/kg	<2.00 [<2.00]	<2.00
BENZYL BUTYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.300 [<0.300]	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.300 [<0.300]	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300
Dibenz(a,h)anthracene	mg/kg	<0.300 [<0.300]	<0.300
DIETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300
Di-n-butyl phthalate	mg/kg	<0.300 [<0.300]	<0.300
Di-n-octyl phthalate	mg/kg	<0.300 [<0.300]	<0.300
FLUORANTHENE	mg/kg	<0.300 [<0.300]	<0.300
FLUORENE	mg/kg	<0.300 [<0.300]	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300 [<0.300]	<0.300
HEXACHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300 [<0.300]	<0.300
HEXACHLOROETHANE	mg/kg	<0.300 [<0.300]	<0.300

Table E.11.Attachment-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	144B1 10 02/10/92	HMW-07 10 02/22/92
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300 [<0.300]	<0.300
M-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330 [<0.330]	<0.330
NITROBENZENE	mg/kg	<0.300 [<0.300]	<0.300
n-Nitrosodi-n-propylamine	mg/kg	<0.300 [<0.300]	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	<0.300 [<0.300]	<0.300
PENTACHLOROPHENOL	mg/kg	<2.00 [<2.00]	<2.00
PHENANTHRENE	mg/kg	<0.300 [<0.300]	<0.300
PHENOL	mg/kg	<0.300 [<0.300]	<0.300
PYRENE	mg/kg	<0.300 [<0.300]	<0.300
TPHs			
PETROLEUM HYDROCARBONS	mg/kg	<13.0 [<14.0]	80
VOCs			
1,1,1-Trichloroethane	mg/kg	<0.00500 [<0.00500]	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]	<0.00500
1,2,3-Trichloropropane	mg/kg	<0.0200 [<0.0200]	<0.0200
1,2-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300
1,2-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500 [<0.00500]	<0.00500
1,4 Dichloro-2-butene	mg/kg	<0.0200 [<0.0200]	<0.0200
2-butanone	mg/kg	<0.100 [<0.100]	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100 [<0.0100]	<0.0100
ACETONE	mg/kg	<0.100 [<0.100]	18
ACROLEIN	mg/kg	<0.200 [<0.200]	<0.200
ACRYLONITRILE	mg/kg	<0.100 [<0.100]	<0.100
BENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300 [<0.300]	<0.300
BROMOMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500 [<0.00500]	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500 [<0.00500]	<0.00500
CFC-11	mg/kg	<0.0100 [<0.0100]	<0.0100
CFC-12	mg/kg	<0.0200 [<0.0200]	<0.0200
CHLOROBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500
CHLORODIBROMOMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100
CHLOROFORM	mg/kg	<0.00500 [<0.00500]	<0.00500
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200 [<0.0200]	<0.0200
DICHLOROMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500
ETHANOL	mg/kg	<1.00 [<1.00]	<1.00
ETHYL METHACRYLATE	mg/kg	<0.0200 [<0.0200]	<0.0200
ETHYLBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500
Iodomethane	mg/kg	<0.0200 [<0.0200]	<0.0200
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]	<0.0500
METHYLBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500
NAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300
STYRENE (MONOMER)	mg/kg	<0.00500 [<0.00500]	<0.00500
TETRACHLOROETHENE	mg/kg	<0.00500 [<0.00500]	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500 [<0.00500]	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]	<0.00500
VINYL ACETATE	mg/kg	<0.0100 [<0.0100]	<0.0100
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]	<0.0100
Xylenes	mg/kg	<0.00500 [<0.00500]	<0.00500

Table E.11.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Soil Waste Management Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	144B1 10 02/10/92	HMW-07 10 02/22/92	HMW-07 15 02/22/92	HMW-07 20 02/22/92	HMW-07 25 03/22/92	HMW-07 30 03/22/92	HMW-07 35 03/22/92	HMW-27 18.5 11/03/93	HMW-28 38 11/10/93
Metals										
ARSENIC	mg/kg	1.70 [2.10]	0.71	0.62	3.2	4.2	1.5	1.6	7.41	15.7 J
BARIUM	mg/kg	67.0 [73.0]	100	<100	99	44	84	30	182 J	143 J
CADMIUM	mg/kg	<1.10 [<1.00]	<2.50	<2.50	<2.30	<0.480	<0.520	<0.540	<1.21 J	<1.05
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	12	13.1 J
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.21 J	<1.05
LEAD	mg/kg	<11.0 [<10.0]	<25.0	<25.0	<23.0	<4.80	10	<5.40	6.30 J	14.3 J
MERCURY	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.0700	<0.100	<0.0700	<0.0242	<0.0211 J
SELENIUM	mg/kg	<0.480 [<0.530]	<0.420	<0.500	<0.540	<0.510	<0.490	<0.470	<3.03	3.49 J
SILVER	mg/kg	<2.20 [<2.00]	<5.00	<5.00	<4.70	<0.960	<1.00	<1.10	12	<5.26
Parameters										
TPH	mg/kg	<13.0 [<14.0]	80	<13.0	<13.0	NA	NA	NA	<36.3	<31.6
SVOCs										
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
1,2-BENZPHENANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.94	<1.69
1,4-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.00606 J	<0.00527
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
2,4,6-Trichlorophenol	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
2,4-DICHLOROPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
2,4-DIMETHYLPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
2,4-DINITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.94	<1.69
2,4-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
2,6-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
2-CHLORONAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
2-CHLOROPHENOL	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.400	<0.348
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.94	<1.69
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.94	<1.69
2-NITROPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.400	<0.348
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.94	<1.69
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
4-Chloro-3-methylphenol	mg/kg	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.400	<0.348
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0242 J	<0.0211

Table E.11.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Soil Waste Management Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	144B1 10 02/10/92	HMW-07 10 02/22/92	HMW-07 15 02/22/92	HMW-07 20 02/22/92	HMW-07 25 03/22/92	HMW-07 30 03/22/92	HMW-07 35 03/22/92	HMW-27 18.5 11/03/93	HMW-28 38 11/10/93
4-NITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.94	<1.69
Acenaphthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
ACENAPHTHYLENE	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA
ANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
BENZIDINE	mg/kg	<1.70 [<1.70]	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.94	<1.69
Benzo(a)anthracene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Benzo(a)pyrene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Benzo(b)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Benzo(g,h,i)perylene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Benzo(k)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
BENZOIC ACID	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.94	<1.69
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
BENZYL BUTYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
bis (2-chloroethoxy) methane	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
bis(2-Chloroethyl) ether	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Dibenz(a,h)anthracene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
DIETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
DIMETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Di-n-butyl phthalate	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Di-n-octyl phthalate	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.21	<1.05
FLUORANTHENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
FLUORENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
HEXACHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
HEXACHLOROETHANE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
M-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.00606 J	<0.00527
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA
NITROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
n-Nitrosodi-n-propylamine	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
N-NITROSODIPHENYLAMINE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.348
PENTACHLOROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.94	<1.69
PHENANTHRENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
PHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.94	<1.69

Table E.11.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Soil Waste Management Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	144B1 10 02/10/92	HMW-07 10 02/22/92	HMW-07 15 02/22/92	HMW-07 20 02/22/92	HMW-07 25 03/22/92	HMW-07 30 03/22/92	HMW-07 35 03/22/92	HMW-27 18.5 11/03/93	HMW-28 38 11/10/93
PYRENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
TPHs										
PETROLEUM HYDROCARBONS	mg/kg	<13.0 [<14.0]	80	<13.0	<13.0	NA	NA	NA	NA	NA
VOCs										
1,1,1-Trichloroethane	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,1-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,1-DICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,2,3-Trichloropropane	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.00606 J	<0.00527
1,2-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.00606 J	<0.00527
1,2-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,2-Dichloropropane	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
1,4 Dichloro-2-butene	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0121 J	<0.0105
2-butanone	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0242 J	<0.0211
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0121 J	<0.0105
ACETONE	mg/kg	<0.100 [<0.100]	18	5.1	0.32	<0.100	<0.100	<0.100	<0.0242 J	<0.0211
ACROLEIN	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.00606 J	<0.00527
ACRYLONITRILE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0121 J	<0.0105
BENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.00606 J	<0.00527
BROMOMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0121 J	<0.0105
CARBON DISULFIDE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
CARBON TETRACHLORIDE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
CFC-11	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0121 J	<0.0105
CFC-12	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA
CHLOROBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
CHLORODIBROMOMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0121 J	<0.0105
CHLOROFORM	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0121 J	<0.0105
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.00606 J	<0.00527
cis-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
DIBROMOMETHANE	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.00606 J	<0.00527
DICHLOROMETHANE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA
ETHANOL	mg/kg	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.00606 J	<0.00527
ETHYLBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
Iodomethane	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0121 J	<0.0105

Table E.11.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Soil Waste Management Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	144B1 10 02/10/92	HMW-07 10 02/22/92	HMW-07 15 02/22/92	HMW-07 20 02/22/92	HMW-07 25 03/22/92	HMW-07 30 03/22/92	HMW-07 35 03/22/92	HMW-27 18.5 11/03/93	HMW-28 38 11/10/93
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0242 J	<0.0211
METHYLBENZENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
NAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.400	<0.348
STYRENE (MONOMER)	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
TETRACHLOROETHENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
trans-1,2-Dichloroethene	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
trans-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.00606 J	<0.00527
TRICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527
VINYL ACETATE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0242 J	<0.0211
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0121 J	<0.0105
Xylenes	mg/kg	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00606 J	<0.00527

Table E.11.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Soil Waste Management Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-07 01/04/07	HMW-26 01/03/07
Metals			
ARSENIC	mg/L	<0.0100	<0.0100
BARIUM	mg/L	0.014	<0.0100
CADMIUM	mg/L	<0.00100	0.002
Chromium	mg/L	0.607	0.006
LEAD	mg/L	<0.00500	<0.00500
MERCURY	mg/L	<0.000200	<0.000200
SELENIUM	mg/L	0.164	0.169
SILVER	mg/L	<0.00200	<0.00200
SODIUM	mg/L	635	4,130
ZINC	mg/L	<0.00500	<0.00500
Metals-Dissolved			
Arsenic, Dissolved	mg/L	<0.00500	<0.00500
Barium, Dissolved	mg/L	0.012	<0.0100
Cadmium, Dissolved	mg/L	<0.00100	<0.00100
Chromium, Dissolved	mg/L	0.673	0.006
Lead, Dissolved	mg/L	<0.00500	<0.00500
Selenium, Dissolved	mg/L	0.135	0.262
Silver, Dissolved	mg/L	<0.00200	<0.00200
Sodium, Dissolved	mg/L	642	4,320
Zinc, Dissolved	mg/L	<0.00500	<0.00500
Parameters			
ALKALINITY	mg/L	120	132
Alkalinity, Bicarbonate	mg/L	120	132
Alkalinity, Carbonate	mg/L	<1.00	<1.00
CONDUCTIVITY	mS/cm	8.93	19.5
CONDUCTIVITY	umhos/cm	8,600	18,800
Hydroxide Alkalinity	mg/L	<1.00	<1.00
pH	pH Units	7.15	7.57
Phosphorus	mg/L	<0.0500	<0.0500
Temperature	deg c	16.5	18
Total Dissolved Solids	mg/L	7,000	16,600
TOTAL ORGANIC CARBON	mg/L	3.75	3.47
SVOCs			
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500
CYMENE	mg/L	<0.00100	<0.00100
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100
VOCs			
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	0.00305	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100

Table E.11.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Soil Waste Management Unit 144
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-07 01/04/07	HMW-26 01/03/07
1,2-Dichloropropane	mg/L	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100
1,4-Dioxane	mg/L	<0.00500	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100
BROMOBENZENE	mg/L	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100
CFC-11	mg/L	0.00151	<0.00100
CFC-12	mg/L	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100
CHLOROFORM	mg/L	0.00332	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	<0.00500
Isopropylbenzene	mg/L	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	<0.00500
tert-Butylbenzene	mg/L	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.00406	0.00313
Vinyl Chloride	mg/L	<0.00100	<0.00100

Notes for E.12.Attachments 1-3
Risk Assessment Datasets
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyl
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound

Table E.12.Attachment-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-09 10 03/21/92
Metals		
ARSENIC	mg/kg	0.520 [0.530]
BARIUM	mg/kg	<93.0 [<110]
CADMIUM	mg/kg	<2.30 [<2.70]
LEAD	mg/kg	<23.0 [<27.0]
MERCURY	mg/kg	<0.100 [<0.0800]
SELENIUM	mg/kg	<0.470 [<0.460]
SILVER	mg/kg	<4.60 [<5.30]
Parameters		
FLUORIDE	mg/kg	1.10 [0.980]
TPH	mg/kg	<13.0 [<13.0]
SVOCs		
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300 [<0.300]
1,2-BENZPHENANTHRACENE	mg/kg	<0.300 [<0.300]
1,4-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]
2,4,6-Trichlorophenol	mg/kg	<0.300 [<0.300]
2,4-DICHLOROPHENOL	mg/kg	<0.300 [<0.300]
2,4-DIMETHYLPHENOL	mg/kg	<0.300 [<0.300]
2,4-DINITROPHENOL	mg/kg	<2.00 [<2.00]
2,4-DINITROTOLUENE	mg/kg	<0.300 [<0.300]
2,6-DINITROTOLUENE	mg/kg	<0.300 [<0.300]
2-CHLORONAPHTHALENE	mg/kg	<0.300 [<0.300]
2-CHLOROPHENOL	mg/kg	<0.330 [<0.330]
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00 [<2.00]
2-NITROPHENOL	mg/kg	<0.300 [<0.300]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700 [<0.700]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300 [<0.300]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]
4-Chloro-3-methylphenol	mg/kg	<0.700 [<0.700]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]
4-NITROPHENOL	mg/kg	<2.00 [<2.00]
Acenaphthene	mg/kg	<0.300 [<0.300]
ACENAPHTHYLENE	mg/kg	<0.330 [<0.330]
ANTHRACENE	mg/kg	<0.300 [<0.300]
BENZIDINE	mg/kg	<1.70 [<1.70]
Benzo(a)anthracene	mg/kg	<0.300 [<0.300]
Benzo(a)pyrene	mg/kg	<0.300 [<0.300]
Benzo(b)fluoranthene	mg/kg	<0.300 [<0.300]
Benzo(g,h,i)perylene	mg/kg	<0.300 [<0.300]
Benzo(k)fluoranthene	mg/kg	<0.300 [<0.300]
BENZOIC ACID	mg/kg	<2.00 [<2.00]
BENZYL BUTYL PHTHALATE	mg/kg	<0.300 [<0.300]
bis (2-chloroethoxy) methane	mg/kg	<0.300 [<0.300]
bis(2-Chloroethyl) ether	mg/kg	<0.300 [<0.300]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300 [<0.300]
Dibenz(a,h)anthracene	mg/kg	<0.300 [<0.300]
DIETHYL PHTHALATE	mg/kg	<0.300 [<0.300]
DIMETHYL PHTHALATE	mg/kg	<0.300 [<0.300]
Di-n-butyl phthalate	mg/kg	<0.300 [<0.300]
Di-n-octyl phthalate	mg/kg	<0.300 [<0.300]
FLUORANTHENE	mg/kg	<0.300 [<0.300]
FLUORENE	mg/kg	<0.300 [<0.300]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300 [<0.300]
HEXACHLOROBENZENE	mg/kg	<0.300 [<0.300]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300 [<0.300]
HEXACHLOROETHANE	mg/kg	<0.300 [<0.300]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300 [<0.300]
M-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330 [<0.330]
NITROBENZENE	mg/kg	<0.300 [<0.300]

Table E.12.Attachment-1
Soil Risk Assessment Dataset
Soil 0-10 foot Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-09 10 03/21/92
n-Nitrosodi-n-propylamine	mg/kg	<0.300 [<0.300]
N-NITROSODIPHENYLAMINE	mg/kg	<0.300 [<0.300]
PENTACHLOROPHENOL	mg/kg	<2.00 [<2.00]
PHENANTHRENE	mg/kg	<0.300 [<0.300]
PHENOL	mg/kg	<0.300 [<0.300]
PYRENE	mg/kg	<0.300 [<0.300]
TPHs		
PETROLEUM HYDROCARBONS	mg/kg	<13.0 [<13.0]
VOCs		
1,1,1-Trichloroethane	mg/kg	<0.00500 [<0.00500]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500 [<0.00500]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500 [<0.00500]
1,1-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]
1,2,3-Trichloropropane	mg/kg	<0.0200 [<0.0200]
1,2-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]
1,2-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500]
1,2-Dichloropropane	mg/kg	<0.00500 [<0.00500]
1,4 Dichloro-2-butene	mg/kg	<0.0200 [<0.0200]
2-butanone	mg/kg	<0.100 [<0.100]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100 [<0.0100]
ACETONE	mg/kg	<0.100 [<0.100]
ACROLEIN	mg/kg	<0.200 [<0.200]
ACRYLONITRILE	mg/kg	<0.100 [<0.100]
BENZENE	mg/kg	<0.00500 [<0.00500]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300 [<0.300]
BROMOMETHANE	mg/kg	<0.00500 [<0.00500]
CARBON DISULFIDE	mg/kg	<0.00500 [<0.00500]
CARBON TETRACHLORIDE	mg/kg	<0.00500 [<0.00500]
CFC-11	mg/kg	<0.0100 [<0.0100]
CFC-12	mg/kg	<0.0200 [<0.0200]
CHLOROBENZENE	mg/kg	<0.00500 [<0.00500]
CHLORODIBROMOMETHANE	mg/kg	<0.00500 [<0.00500]
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]
CHLOROFORM	mg/kg	<0.00500 [<0.00500]
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]
cis-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]
DIBROMOMETHANE	mg/kg	<0.0200 [<0.0200]
DICHLOROMETHANE	mg/kg	<0.00500 [<0.00500]
ETHANOL	mg/kg	<1.00 [<1.00]
ETHYL METHACRYLATE	mg/kg	<0.0200 [<0.0200]
ETHYLBENZENE	mg/kg	<0.00500 [<0.00500]
Iodomethane	mg/kg	<0.0200 [<0.0200]
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]
METHYLBENZENE	mg/kg	<0.00500 [<0.00500]
NAPHTHALENE	mg/kg	<0.300 [<0.300]
STYRENE (MONOMER)	mg/kg	<0.00500 [<0.00500]
TETRACHLOROETHENE	mg/kg	<0.00500 [<0.00500]
trans-1,2-Dichloroethene	mg/kg	<0.00500 [<0.00500]
trans-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500]
TRICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500]
VINYL ACETATE	mg/kg	<0.0100 [<0.0100]
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]
Xylenes	mg/kg	<0.00500 [<0.00500]

Table E.12.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-09 10 03/21/92	HMW-09 15 03/21/92	HMW-09 20 03/21/92	HMW-09 25 03/24/92	HMW-09 30 03/24/92	HMW-09 35 03/24/92	HMW-44 18 11/18/93	HMW-44 38 11/18/93	HMW-45 19 11/21/93	HMW-45 39 11/21/93	HMW-46 18 11/06/93
Metals												
ARSENIC	mg/kg	0.520 [0.530]	0.75	6	2.7	3.8	1.6	3.18	<2.89	<3.34	<3.37	14.8 J
BARIUM	mg/kg	<93.0 [<110]	<110	<41.0	140	110	23	31.2	75.1	81.6	32.4	35.2 J
CADMIUM	mg/kg	<2.30 [<2.70]	<2.70	<1.00	<1.10	<0.520	<0.480	<1.20	<1.15	<1.33	<1.35	<1.22
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	11.6	10.6	11.6	<6.76	8.24 J
LEAD	mg/kg	<23.0 [<27.0]	<27.0	<10.0	<11.0	6.7	<4.80	6.42	5.86	6.98	5.55	4.05 J
MERCURY	mg/kg	<0.100 [<0.0800]	<0.100	<0.0900	<10.0	<0.0700	<0.0900	<0.0240	<0.0231	<0.0267	<0.0270	<0.0245 J
SELENIUM	mg/kg	<0.470 [<0.460]	<0.480	<0.540	<0.480	<0.480	<0.480	<3.00	<2.89	<3.34	<3.37	<3.07 J
SILVER	mg/kg	<4.60 [<5.30]	<5.40	<2.00	<2.10	<1.00	<0.950	8.88	<5.75	11.9	<6.76	6.54 J
Parameters												
FLUORIDE	mg/kg	1.10 [0.980]	1.3	2.4	1.5	1.4	0.66	1.14	0.0578	<0.0481 J	<0.391 J	2.96
TPH	mg/kg	<13.0 [<13.0]	<14.0	<13.0	<13.0	<12.0	<13.0	<35.9	<34.7	<40.0	<40.4	<36.8
SVOCs												
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
1,2-BENZPHENANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.92	<1.85	<2.14	<2.16	<1.96
1,4-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
2,4,6-Trichlorophenol	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
2,4-DICHLOROPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
2,4-DIMETHYLPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
2,4-DINITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<1.92	<1.85	<2.14	<2.16	<1.96
2,4-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
2,6-DINITROTOLUENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
2-CHLORONAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
2-CHLOROPHENOL	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	<0.396	<0.382	<0.441	<0.445	<0.405
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<1.92	<1.85	<2.14	<2.16	<1.96
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.92	<1.85	<2.14	<2.16	<1.96
2-NITROPHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.396	<0.382	<0.441	<0.445	<0.405
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.92	<1.85	<2.14	<2.16	<1.96
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
4-Chloro-3-methylphenol	mg/kg	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.396	<0.382	<0.441	<0.445	<0.405
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0480	<0.0231	<0.0267	<0.0270	<0.0245
4-NITROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<1.92	<1.85	<2.14	<2.16	<1.96
Acenaphthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
ACENAPHTHYLENE	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA

Table E.12.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-09 10 03/21/92	HMW-09 15 03/21/92	HMW-09 20 03/21/92	HMW-09 25 03/24/92	HMW-09 30 03/24/92	HMW-09 35 03/24/92	HMW-44 18 11/18/93	HMW-44 38 11/18/93	HMW-45 19 11/21/93	HMW-45 39 11/21/93	HMW-46 18 11/06/93
ANTHRACENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
BENZIDINE	mg/kg	<1.70 [<1.70]	<1.70	<1.70	<1.70	<1.70	<1.70	<1.92	<1.85	<2.14	<2.16	<1.96
Benzo(a)anthracene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Benzo(a)pyrene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Benzo(b)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Benzo(g,h,i)perylene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Benzo(k)fluoranthene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
BENZOIC ACID	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<1.92	<1.85	<2.14	<2.16	<1.96
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
BENZYL BUTYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
bis (2-chloroethoxy) methane	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
bis(2-Chloroethyl) ether	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Dibenz(a,h)anthracene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
DIETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
DIMETHYL PHTHALATE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Di-n-butyl phthalate	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Di-n-octyl phthalate	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.20	<1.16	<1.33	<1.35	<1.23
FLUORANTHENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
FLUORENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
HEXACHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
HEXACHLOROETHANE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
M-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
n-Nitrosodi-n-propylamine	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
N-NITROSODIPHENYLAMINE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<0.396	<0.382	<0.441	<0.445	<0.405
PENTACHLOROPHENOL	mg/kg	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<1.92	<1.85	<2.14	<2.16	<1.96
PHENANTHRENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
PHENOL	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	<1.92	<1.85	<2.14	<2.16	<1.96
PYRENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
TPHs												
PETROLEUM HYDROCARBONS	mg/kg	<13.0 [<13.0]	<14.0	<13.0	<13.0	<12.0	<13.0	NA	NA	NA	NA	NA
VOCs												
1,1,1-Trichloroethane	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,1-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,1-DICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613

Table E.12.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-09 10 03/21/92	HMW-09 15 03/21/92	HMW-09 20 03/21/92	HMW-09 25 03/24/92	HMW-09 30 03/24/92	HMW-09 35 03/24/92	HMW-44 18 11/18/93	HMW-44 38 11/18/93	HMW-45 19 11/21/93	HMW-45 39 11/21/93	HMW-46 18 11/06/93
1,2,3-Trichloropropane	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,2-DICHLOROBENZENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,2-DICHLOROETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,2-Dichloropropane	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
1,4 Dichloro-2-butene	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
2-butanone	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0480	<0.0231	<0.0267	<0.0270	<0.0245
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
ACETONE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	0.2	<0.0480	<0.0231	<0.0267	<0.0270	<0.0245
ACROLEIN	mg/kg	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
ACRYLONITRILE	mg/kg	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
BENZENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
BROMOMETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
CARBON DISULFIDE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
CARBON TETRACHLORIDE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
CFC-11	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
CFC-12	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
CHLORODIBROMOMETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
CHLOROETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
CHLOROFORM	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
CHLOROMETHANE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
cis-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
DIBROMOMETHANE	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
DICHLOROMETHANE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
ETHANOL	mg/kg	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
ETHYLBENZENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
Iodomethane	mg/kg	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
METHYL N-BUTYL KETONE	mg/kg	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0480	<0.0231	<0.0267	<0.0270	<0.0245
METHYLBENZENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
NAPHTHALENE	mg/kg	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.396	<0.382	<0.441	<0.445	<0.405
STYRENE (MONOMER)	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
TETRACHLOROETHENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
trans-1,2-Dichloroethene	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
trans-1,3-Dichloropropene	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
TRICHLOROETHYLENE	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613
VINYL ACETATE	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0480	<0.0231	<0.0267	<0.0270	<0.0245
Vinyl Chloride	mg/kg	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0240	<0.0116	<0.0134	<0.0135	<0.0123
Xylenes	mg/kg	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0120	<0.00578	<0.00668	<0.00675	<0.00613

Table E.12.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-09 01/10/07	HMW-45 01/10/07
Metals			
Chromium	mg/L	0.011	0.0110 [0.0110]
SILVER	mg/L	<0.00200	<0.00200 [<0.00200]
ZINC	mg/L	<0.00500	<0.00500 [<0.00500]
Metals-Dissolved			
Chromium, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]
Silver, Dissolved	mg/L	<0.00200	<0.00200 [<0.00200]
Zinc, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]
Parameters			
ALKALINITY	mg/L	118	92.0 [90.0]
Alkalinity, Bicarbonate	mg/L	118	92.0 [90.0]
Alkalinity, Carbonate	mg/L	<1.00	<1.00 [<1.00]
Bromide	mg/L	<1.00	<1.00 [<1.00]
Chloride (CL)	mg/L	1,080	2,200 [2,320]
CONDUCTIVITY	mS/cm	11.4	12.7 [12.7]
CONDUCTIVITY	umhos/cm	11,200	12,200 [12,300]
FLUORIDE	mg/L	2.57	3.31 [3.31]
Hydroxide Alkalinity	mg/L	<1.00	<1.00 [<1.00]
Nitrate	mg/L	55.4	90.6 [92.4]
Nitrite	mg/L	<0.500	<0.500 [<0.500]
pH	pH Units	7.55	7.52 [7.52]
Sulfate	mg/L	5,320	4,220 [4,240]
Temperature	deg c	18.9	17.7 [17.7]
Total Dissolved Solids	mg/L	10,400	10,300 [9,760]
TOTAL ORGANIC CARBON	mg/L	<1.00	<1.00 [<1.00]
SVOCs			
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500 [<0.00500]
CYMENE	mg/L	<0.00100	<0.00100 [<0.00100]
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500 [<0.00500]
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
VOCs			
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100 [<0.00100]
1,1-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500 [<0.00500]
1,2-Dibromoethane	mg/L	<0.00100	<0.00100 [<0.00100]
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
1,2-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]
1,4-Dioxane	mg/L	<0.00500	<0.00500 [<0.00500]
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]
2-butanone	mg/L	<0.00500	<0.00500 [<0.00500]
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500 [<0.00500]
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]
ACETONE	mg/L	<0.0100	<0.0100 [<0.0100]
ACRYLONITRILE	mg/L	<0.00100	<0.00100 [<0.00100]
BENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
BROMOBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
BROMOMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]

Table E.12.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 145
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-09 01/10/07	HMW-45 01/10/07
CARBON DISULFIDE	mg/L	<0.00100	<0.00100 [<0.00100]
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100 [<0.00100]
CFC-11	mg/L	<0.00100	<0.00100 [<0.00100]
CFC-12	mg/L	<0.00100	<0.00100 [<0.00100]
CHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
CHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
CHLOROFORM	mg/L	0.00712	0.0100 [0.0104]
CHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]
DIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
DICHLOROMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]
ETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
Iodomethane	mg/L	<0.00500	<0.00500 [<0.00500]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	<0.00500 [0.0622]
Isopropylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]
m,p-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500 [<0.00500]
METHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]
MTBE	mg/L	<0.00100	<0.00100 [<0.00100]
NAPHTHALENE	mg/L	<0.00500	<0.00500 [<0.00500]
n-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]
n-Propylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]
o-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]
sec-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100 [<0.00100]
TERT-BUTYL ALCOHOL	mg/L	<0.00500	<0.00500 [<0.00500]
tert-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100 [<0.00100]
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100 [<0.0100]
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100 [<0.00100]
Vinyl Chloride	mg/L	<0.00100	<0.00100 [<0.00100]

Notes for E.13.Attachments 1-4
Risk Assessment Datasets
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

% =	Percentage
< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyl
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound

Table E.13.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06
Metals						
ARSENIC	mg/kg	<2.00	<2.00	<2.00	2.68	<2.00 [<2.00]
BARIUM	mg/kg	31.9	26.3	41.7	48.6	43.4 [44.2]
CADMIUM	mg/kg	<0.100	0.134	<0.100	<0.100	<0.100 [<0.100]
Chromium	mg/kg	3.38	2.21	3.33	3.93	3.07 [2.93]
Hexavalent Chromium	mg/kg	<0.400	<0.400	<0.400	<0.400	<0.400 [<0.400]
LEAD	mg/kg	4.69	2.73	<1.00	<1.00	<1.00 [<1.00]
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400 [<0.0400]
POTASSIUM	mg/kg	451	407	709	632	915 [732]
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]
SILVER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
SODIUM	mg/kg	244	332	253	214	203 [149]
ZINC	mg/kg	8.72	4.55	6.98	7.91	6.63 [6.67]
Other						
FOC	%	6.58	6.21	6.16	4.93	5.95 [6.04]
Parameters						
FLUORIDE	mg/kg	NA	NA	NA	NA	NA
pH	pH Units	NA	NA	NA	NA	NA
Phosphorus	mg/kg	100	67.7	74.7	120	102 [104]
TPH	mg/kg	NA	NA	NA	NA	NA
SVOCs						
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA

Table E.13.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA
TPHs						
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0	<50.0 [<50.0]
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]

Table E.13.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA
VOCs						
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500 [<0.500]
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]
ACROLEIN	mg/kg	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]

Table E.13.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
ETHANOL	mg/kg	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Xylenes	mg/kg	NA	NA	NA	NA	NA

Table E.13.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	146S1 3 02/16/92	146S2 3 02/16/92	146S3 3 02/16/92	146S4 3 02/16/92	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06	HMW-06 10 02/21/92
Metals											
ARSENIC	mg/kg	0.73	1.1	0.54	0.85	<2.00	<2.00	<2.00	2.68	<2.00 [<2.00]	0.500 [<0.480]
BARIUM	mg/kg	<98.0	<100	<100	<91.0	31.9	26.3	41.7	48.6	43.4 [44.2]	<88.0 [<100]
CADMIUM	mg/kg	<2.50	<2.60	<2.50	<2.30	<0.100	0.134	<0.100	<0.100	<0.100 [<0.100]	<2.20 [<2.60]
Chromium	mg/kg	NA	NA	NA	NA	3.38	2.21	3.33	3.93	3.07 [2.93]	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	<0.400	<0.400	<0.400	<0.400	<0.400 [<0.400]	NA
LEAD	mg/kg	<25.0	<26.0	<25.0	<23.0	4.69	2.73	<1.00	<1.00	<1.00 [<1.00]	<22.0 [<26.0]
MERCURY	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400 [<0.0400]	<0.100 [<0.100]
POTASSIUM	mg/kg	NA	NA	NA	NA	451	407	709	632	915 [732]	NA
SELENIUM	mg/kg	<0.520	2.2	<0.500	<0.480	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<0.470 [<0.480]
SILVER	mg/kg	<4.90	<5.20	<5.10	<4.50	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<4.40 [<5.20]
SODIUM	mg/kg	NA	NA	NA	NA	244	332	253	214	203 [149]	NA
ZINC	mg/kg	NA	NA	NA	NA	8.72	4.55	6.98	7.91	6.63 [6.67]	NA
Other											
FOC	%	NA	NA	NA	NA	6.58	6.21	6.16	4.93	5.95 [6.04]	NA
Parameters											
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	100	67.7	74.7	120	102 [104]	NA
TPH	mg/kg	<13.0	<13.0	<13.0	<13.0	NA	NA	NA	NA	NA	<13.0 [<13.0]
SVOCs											
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.300 [<0.300]
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.300 [<0.300]
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	<2.00 [<2.00]
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
2-CHLOROPHENOL	mg/kg	<0.000300	<0.000300	<0.000300	<0.000300	NA	NA	NA	NA	NA	<0.330 [<0.330]
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.00170	<0.00170	<0.00170	<0.00170	NA	NA	NA	NA	NA	<2.00 [<2.00]
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA	<0.700 [<0.700]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA	<0.700 [<0.700]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500 [<0.0500]
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	<2.00 [<2.00]
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
ACENAPHTHYLENE	mg/kg	<0.000300	<0.000300	<0.000300	<0.000300	NA	NA	NA	NA	NA	<0.330 [<0.330]
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	NA	NA	NA	NA	NA	<1.70 [<1.70]
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]

Table E.13.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	146S1 3 02/16/92	146S2 3 02/16/92	146S3 3 02/16/92	146S4 3 02/16/92	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06	HMW-06 10 02/21/92
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	<2.00 [<2.00]
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
CYMENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.300 [<0.300]
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.300 [<0.300]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA	<0.330 [<0.330]
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	<2.00 [<2.00]
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
TPHs											
DRO	mg/kg	NA	NA	NA	NA	<50.0	<50.0	<50.0	<50.0	<50.0 [<50.0]	NA
GRO	mg/kg	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	NA
PETROLEUM HYDROCARBONS	mg/kg	<13.0	<13.0	<13.0	<13.0	NA	NA	NA	NA	NA	<13.0 [<13.0]
VOCs											
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0200 [<0.0200]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.300 [<0.300]
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	<0.0200 [<0.0200]
1,4-Dioxane	mg/kg	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500 [<0.500]	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.100 [<0.100]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0100 [<0.0100]

Table E.13.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	146S1 3 02/16/92	146S2 3 02/16/92	146S3 3 02/16/92	146S4 3 02/16/92	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-036 0.5 - 1 09/28/06	HMW-06 10 02/21/92
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100 [<0.100]
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	<0.200 [<0.200]
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.100 [<0.100]
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	<0.300 [<0.300]
BROMOBENZENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.00500 [<0.00500]
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0200 [<0.0200]
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0200 [<0.0200]
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.00500 [<0.00500]
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	<1.00 [<1.00]
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	<0.0200 [<0.0200]
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0200 [<0.0200]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500 [<0.0500]
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
MTBE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.300 [<0.300]
n-Butylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
o-Xylene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.00500 [<0.00500]
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	<0.0100 [<0.0100]
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	<0.00500 [<0.00500]

Table E.13.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	146S1 3 02/16/92	146S2 3 02/16/92	146S3 3 02/16/92	146S4 3 02/16/92	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-032 10 - 11 10/24/06	HLSF-SB-032 20 - 21 10/24/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-033 10 - 11 10/31/06	HLSF-SB-033 20 - 21 10/31/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-034 10 - 11 10/31/06	HLSF-SB-034 20 - 21 10/31/06
Metals														
ARSENIC	mg/kg	0.73	1.1	0.54	0.85	<2.00	<2.00	<2.00	<2.00	<2.00	11.6	<2.00	<2.00	9.81
BARIUM	mg/kg	<98.0	<100	<100	<91.0	31.9	63.6	128	26.3	71.4	71.5	41.7	64.6	207
CADMIUM	mg/kg	<2.50	<2.60	<2.50	<2.30	<0.100	<0.100	<0.100	0.134	<0.100	<0.100	<0.100	<0.100	<0.100
Chromium	mg/kg	NA	NA	NA	NA	3.38	4.69	11.6	2.21	6.26	9.61	3.33	5.54	12.2
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	<0.400	<5.00	<5.00	<0.400	<5.00	<5.00	<0.400	<5.00	<5.00
LEAD	mg/kg	<25.0	<26.0	<25.0	<23.0	4.69	7.09	22.6	2.73	10.4	20.1	<1.00	8.85	25.3
MERCURY	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
POTASSIUM	mg/kg	NA	NA	NA	NA	451	1,300	3,310	407	1,620	2,210	709	1,420	2,930
SELENIUM	mg/kg	<0.520	2.2	<0.500	<0.480	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	<4.90	<5.20	<5.10	<4.50	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
SODIUM	mg/kg	NA	NA	NA	NA	244	514	2,890	332	541	829	253	708	730
ZINC	mg/kg	NA	NA	NA	NA	8.72	9.75	33.2	4.55	12.6	30.3	6.98	9.76	37.3
Other														
FOC	%	NA	NA	NA	NA	6.58	2.87	1.18	6.21	2.49	2.15	6.16	3.31	2.92
Parameters														
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	100	76.5	224	67.7	79.3	275	74.7	83.4	272
TPH	mg/kg	<13.0	<13.0	<13.0	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs														
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.000300	<0.000300	<0.000300	<0.000300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.00170	<0.00170	<0.00170	<0.00170	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.000300	<0.000300	<0.000300	<0.000300	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.13.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	146S1 3 02/16/92	146S2 3 02/16/92	146S3 3 02/16/92	146S4 3 02/16/92	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-032 10 - 11 10/24/06	HLSF-SB-032 20 - 21 10/24/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-033 10 - 11 10/31/06	HLSF-SB-033 20 - 21 10/31/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-034 10 - 11 10/31/06	HLSF-SB-034 20 - 21 10/31/06
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs														
DRO	mg/kg	NA	NA	NA	NA	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
GRO	mg/kg	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
PETROLEUM HYDROCARBONS	mg/kg	<13.0	<13.0	<13.0	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.13.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	146S1 3 02/16/92	146S2 3 02/16/92	146S3 3 02/16/92	146S4 3 02/16/92	HLSF-SB-032 0.5 - 1 09/28/06	HLSF-SB-032 10 - 11 10/24/06	HLSF-SB-032 20 - 21 10/24/06	HLSF-SB-033 0.5 - 1 09/28/06	HLSF-SB-033 10 - 11 10/31/06	HLSF-SB-033 20 - 21 10/31/06	HLSF-SB-034 0.5 - 1 09/28/06	HLSF-SB-034 10 - 11 10/31/06	HLSF-SB-034 20 - 21 10/31/06
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.13.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-035 10 - 11 10/23/06	HLSF-SB-035 20 - 21 10/23/06	HLSF-SB-036 0.5 - 1 09/28/06	HLSF-SB-036 10 - 11 10/23/06	HMW-06 10 02/21/92	HMW-06 15 02/21/92	HMW-06 20 02/21/92	HMW-22 19 11/02/93	HMW-24 20 11/04/93
Metals											
ARSENIC	mg/kg	2.68	<2.00	5.94	<2.00 [<2.00]	<2.00	0.500 [<0.480]	0.52	2.5	9.97	5.49
BARIUM	mg/kg	48.6	102	17.3	43.4 [44.2]	71.5	<88.0 [<100]	<100	<100	27.7 J	40.9
CADMIUM	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<2.20 [<2.60]	<2.50	<2.60	<1.25 J	<1.19 J
Chromium	mg/kg	3.93	7.65	8.67	3.07 [2.93]	7.44	NA	NA	NA	7.33	<5.95
Hexavalent Chromium	mg/kg	<0.400	<5.00	<5.00	<0.400 [<0.400]	<5.00	NA	NA	NA	<1.25 J	<1.16
LEAD	mg/kg	<1.00	12	17.1	<1.00 [<1.00]	10.3	<22.0 [<26.0]	<25.0	<26.0	46.2	11.5 J
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400 [<0.0400]	<0.0400	<0.100 [<0.100]	<0.100	<0.100	<0.0251	<0.0232 J
POTASSIUM	mg/kg	632	2,180	2,180	915 [732]	1,830	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<0.470 [<0.480]	<0.470	<0.490	32.2	<2.90 J
SILVER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<4.40 [<5.20]	<5.00	<5.20	8.53	12.6
SODIUM	mg/kg	214	696	1,260	203 [149]	497	NA	NA	NA	NA	NA
ZINC	mg/kg	7.91	16.8	26.2	6.63 [6.67]	14.4	NA	NA	NA	NA	NA
Other											
FOC	%	4.93	3.29	1.91	5.95 [6.04]	2.03	NA	NA	NA	NA	NA
Parameters											
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	120	131	213	102 [104]	95.9	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	<13.0 [<13.0]	<13.0	<13.0	NA	<34.7
SVOCs											
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.85
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.300 [<0.300]	<0.300	<0.300	<0.00627 J	<0.00579
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	<2.00 [<2.00]	<2.00	<2.00	NA	<1.85
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	<0.330 [<0.330]	<0.330	<0.330	NA	<0.382
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	<2.00 [<2.00]	<2.00	<2.00	NA	<1.85
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.85
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	<0.700 [<0.700]	<0.700	<0.700	NA	<0.382
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.85
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	<0.700 [<0.700]	<0.700	<0.700	NA	<0.382
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0251 J	<0.0232
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	<2.00 [<2.00]	<2.00	<2.00	NA	<1.85
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	<0.330 [<0.330]	<0.330	<0.330	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	<1.70 [<1.70]	<1.70	<1.70	NA	<1.85
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382

Table E.13.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-035 10 - 11 10/23/06	HLSF-SB-035 20 - 21 10/23/06	HLSF-SB-036 0.5 - 1 09/28/06	HLSF-SB-036 10 - 11 10/23/06	HMW-06 10 02/21/92	HMW-06 15 02/21/92	HMW-06 20 02/21/92	HMW-22 19 11/02/93	HMW-24 20 11/04/93
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	<2.00 [<2.00]	<2.00	<2.00	NA	<1.85
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	<0.382
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.16
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
FLUORENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.300 [<0.300]	<0.300	<0.300	<0.00627 J	<0.00579
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	<0.330 [<0.330]	<0.330	<0.330	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.382
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	<2.00 [<2.00]	<2.00	<2.00	NA	<1.85
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
PHENOL	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.85
PYRENE	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
TPHs											
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0 [<50.0]	<50.0	NA	NA	NA	NA	NA
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	<13.0 [<13.0]	<13.0	<13.0	NA	NA
VOCs											
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.00627 J	<0.00579
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.300 [<0.300]	<0.300	<0.300	<0.00627 J	<0.00579
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0125 J	<0.0116
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500 [<0.500]	<0.500	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.100 [<0.100]	<0.100	<0.100	<0.0251 J	<0.0232
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0125 J	<0.0116
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.0251 J	<0.0232
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	<0.200 [<0.200]	<0.200	<0.200	<0.00627 J	<0.00579

Table E.13.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-035 0.5 - 1 09/28/06	HLSF-SB-035 10 - 11 10/23/06	HLSF-SB-035 20 - 21 10/23/06	HLSF-SB-036 0.5 - 1 09/28/06	HLSF-SB-036 10 - 11 10/23/06	HMW-06 10 02/21/92	HMW-06 15 02/21/92	HMW-06 20 02/21/92	HMW-22 19 11/02/93	HMW-24 20 11/04/93
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.100 [<0.100]	<0.100	<0.100	<0.0125 J	<0.0116
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	<0.00627 J	<0.00579
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.0125 J	<0.0116
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0125 J	<0.0116
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0200 [<0.0200]	<0.0200	<0.0200	NA	NA
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0125 J	<0.0116
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0125 J	<0.0116
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	<0.00627 J	<0.00579
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.00627 J	<0.00579
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.00500 [<0.00500]	<0.00500	<0.00500	NA	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	<1.00 [<1.00]	<1.00	<1.00	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.00627 J	<0.00579
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0125 J	<0.0116
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0251 J	<0.0232
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.300 [<0.300]	<0.300	<0.300	NA	<0.382
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	<0.00627 J	<0.00579
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0251 J	<0.0232
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0125 J	<0.0116
Xylenes	mg/kg	NA	NA	NA	NA	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00627 J	<0.00579

Table E.13.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-21 12/07/06	HMW-23 12/11/06	HMW-24 12/07/06
Metals				
ARSENIC	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100
BARIUM	mg/L	<0.0100	0.0100 [0.0100]	0.01
CADMIUM	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
Chromium	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
COPPER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
LEAD	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
MERCURY	mg/L	<0.000200	<0.000200 [<0.000200]	<0.000200
SELENIUM	mg/L	<0.0100	<0.0100 [0.0860]	0.114
SILVER	mg/L	<0.00200	<0.00200 [<0.00200]	<0.00200
SODIUM	mg/L	2,290	2,100 [2,070]	3,460
ZINC	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
Metals-Dissolved				
Arsenic, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
Barium, Dissolved	mg/L	<0.0100	0.0100 [0.0100]	0.01
Cadmium, Dissolved	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
Chromium, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
Copper, Dissolved	mg/L	<0.0125	<0.0125 [<0.0125]	<0.0125
Dissolved Mercury	mg/L	<0.000200	NA	<0.000200
Lead, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
Selenium, Dissolved	mg/L	<0.0100	<0.0100 [0.0580]	0.099
Silver, Dissolved	mg/L	<0.00200	<0.00200 [<0.00200]	<0.00200
Sodium, Dissolved	mg/L	2,760	2,000 [1,590]	4,040
Zinc, Dissolved	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
Parameters				
ALKALINITY	mg/L	174	68.0 [66.0]	80
Alkalinity, Bicarbonate	mg/L	174	68.0 [66.0]	80
Alkalinity, Carbonate	mg/L	<1.00	<1.00 [<1.00]	<1.00
Ammonia	mg/L	<1.00	<1.00 [<1.00]	<1.00
Bromide	mg/L	<1.00	<1.00 [<1.00]	<1.00
Chloride (CL)	mg/L	2,240	1,480 [1,430]	2,170
CONDUCTIVITY	mS/cm	15.3	11.7 [11.7]	18.2
CONDUCTIVITY	umhos/cm	15,000	11,200 [11,000]	18,100
FLUORIDE	mg/L	4.26	3.78 [3.85]	5.75
Hydroxide Alkalinity	mg/L	<1.00	<1.00 [<1.00]	<1.00
Nitrate	mg/L	63.8	65.5 [63.4]	67.5
Nitrate + Nitrite	mg/L	NA	56.9 [46.8]	NA
Nitrite	mg/L	<0.500	<1.00 [<1.00]	<0.500
pH	pH Units	7.82	7.52 [7.53]	7.9
Phosphorus	mg/L	<0.0500	<0.0500 [<0.0500]	<0.0500
Sulfate	mg/L	6,470	5,890 [5,740]	8,570
Temperature	deg c	16.5	18.5 [18.5]	17.1
Total Dissolved Solids	mg/L	14,500	10,000 [9,990]	18,200
SVOCs				
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
CYMENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
VOCs				
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100

Table E.13.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 146
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-21 12/07/06	HMW-23 12/11/06	HMW-24 12/07/06
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
1,4-Dioxane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
2-butanone	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
ACETONE	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
BENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
BROMOBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CFC-11	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CFC-12	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
CHLOROFORM	mg/L	0.00737	0.00522 [0.00518]	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
Isopropylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
MTBE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	<0.00500 [<0.00500]	<0.00500
tert-Butylbenzene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100 [<0.0100]	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100 [<0.00100]	<0.00100

Notes for E.14.Attachments 1-4
Risk Assessment Datasets
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

% =	Percentage
< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyl
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound

Table E.14.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	147BG 2 04/06/92
Metals		
ARSENIC	mg/kg	<0.500
BARIUM	mg/kg	<100
CADMIUM	mg/kg	<2.60
LEAD	mg/kg	<26.0
MERCURY	mg/kg	<0.0800
SELENIUM	mg/kg	<0.500
SILVER	mg/kg	<5.20
Parameters		
TPH	mg/kg	<13.0
SVOCs		
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	<0.300
1,4-DICHLOROBENZENE	mg/kg	<0.300
2,4,6-Trichlorophenol	mg/kg	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.300
2,4-DINITROPHENOL	mg/kg	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.300
2,6-DINITROTOLUENE	mg/kg	<0.300
2-CHLORONAPHTHALENE	mg/kg	<0.300
2-CHLOROPHENOL	mg/kg	<0.330
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00
2-NITROPHENOL	mg/kg	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500
4-NITROPHENOL	mg/kg	<2.00
Acenaphthene	mg/kg	<0.300
ACENAPHTHYLENE	mg/kg	<0.330
ANTHRACENE	mg/kg	<0.300
BENZIDINE	mg/kg	<1.70
Benzo(a)anthracene	mg/kg	<0.300
Benzo(a)pyrene	mg/kg	<0.300
Benzo(b)fluoranthene	mg/kg	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.300
Benzo(k)fluoranthene	mg/kg	<0.300
BENZOIC ACID	mg/kg	<2.00
BENZYL BUTYL PHTHALATE	mg/kg	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300
Dibenz(a,h)anthracene	mg/kg	<0.300
DIETHYL PHTHALATE	mg/kg	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.300
Di-n-butyl phthalate	mg/kg	<0.300
Di-n-octyl phthalate	mg/kg	<0.300
FLUORANTHENE	mg/kg	<0.300
FLUORENE	mg/kg	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300
HEXACHLOROBENZENE	mg/kg	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300
HEXACHLOROETHANE	mg/kg	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300
M-DICHLOROBENZENE	mg/kg	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330
NITROBENZENE	mg/kg	<0.300
n-Nitrosodi-n-propylamine	mg/kg	<0.300

Table E.14.Attachment-1
Soil Risk Assessment Dataset
0-2 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	147BG 2 04/06/92
N-NITROSODIPHENYLAMINE	mg/kg	<0.300
PENTACHLOROPHENOL	mg/kg	<2.00
PHENANTHRENE	mg/kg	<0.300
PHENOL	mg/kg	<0.300
PYRENE	mg/kg	<0.300
TPHs		
PETROLEUM HYDROCARBONS	mg/kg	<13.0
VOCs		
1,1,1-Trichloroethane	mg/kg	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500
1,2,3-Trichloropropane	mg/kg	<0.0200
1,2-DICHLOROBENZENE	mg/kg	<0.300
1,2-DICHLOROETHANE	mg/kg	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500
1,4 Dichloro-2-butene	mg/kg	<0.0200
2-butanone	mg/kg	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100
ACETONE	mg/kg	<0.100
ACROLEIN	mg/kg	<0.200
ACRYLONITRILE	mg/kg	<0.100
BENZENE	mg/kg	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300
BROMOMETHANE	mg/kg	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500
CFC-11	mg/kg	<0.0100
CFC-12	mg/kg	<0.0200
CHLOROBENZENE	mg/kg	<0.00500
CHLORODIBROMOMETHANE	mg/kg	<0.00500
CHLOROETHANE	mg/kg	<0.0100
CHLOROFORM	mg/kg	<0.00500
CHLOROMETHANE	mg/kg	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200
DICHLOROMETHANE	mg/kg	<0.00500
ETHANOL	mg/kg	<1.00
ETHYL METHACRYLATE	mg/kg	<0.0200
ETHYLBENZENE	mg/kg	<0.00500
Iodomethane	mg/kg	<0.0200
METHYL N-BUTYL KETONE	mg/kg	<0.0500
METHYLBENZENE	mg/kg	<0.00500
NAPHTHALENE	mg/kg	<0.300
STYRENE (MONOMER)	mg/kg	<0.00500
TETRACHLOROETHENE	mg/kg	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500
VINYL ACETATE	mg/kg	<0.0100
Vinyl Chloride	mg/kg	<0.0100
Xylenes	mg/kg	<0.00500

Table E.14.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	147B1 5 06/08/92	147B1 10 06/08/92	147BG 2 04/06/92	HCF-01 4 - 6 03/28/90
Metals					
ARSENIC	mg/kg	0.730	<0.520	<0.500	NA
BARIUM	mg/kg	<110	<100	<100	NA
CADMIUM	mg/kg	<2.70	<2.60	<2.60	NA
LEAD	mg/kg	<27.0	<26.0	<26.0	NA
MERCURY	mg/kg	<0.100	<0.100	<0.0800	NA
SELENIUM	mg/kg	<0.500	<0.520	<0.500	NA
SILVER	mg/kg	<5.30	<5.30	<5.20	NA
Parameters					
TPH	mg/kg	21.0	<13.0	<13.0	NA
SVOCs					
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	NA
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<0.330	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.70	<1.70	<2.00	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	NA
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	NA
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	<0.330	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.460	<0.300	<0.300	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	NA
FLUORENE	mg/kg	<0.300	<0.300	<0.300	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	NA
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	NA

Table E.14.Attachment-2
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	147B1 5 06/08/92	147B1 10 06/08/92	147BG 2 04/06/92	HCF-01 4 - 6 03/28/90
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	NA
TPHs					
>C10-C28	mg/kg	NA	NA	NA	2,600
PETROLEUM HYDROCARBONS	mg/kg	21.0	<13.0	<13.0	NA
VOCs					
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	NA
2-butanone	mg/kg	<0.100	<0.100	<0.100	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	NA
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	NA
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	NA
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	NA
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	NA
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	NA
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	NA
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	NA
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	NA
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	NA
ETHANOL	mg/kg	<1.00	<1.00	<1.00	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	NA
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	NA
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	NA
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	NA
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	NA

Table E.14.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	147B1 5 06/08/92	147B1 10 06/08/92	147B1 15 06/08/92	147B1 20 06/08/92	147B1 25 06/08/92	147B1 30 06/08/92	147BG 2 04/06/92	HCF-01 4 - 6 03/28/90	HCF-01 19 - 20 03/28/90	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90
Metals													
ARSENIC	mg/kg	0.730	<0.520	<0.540 [<0.490]	2.10	2.10	1.20	<0.500	NA	15.0	NA	18.0	35.0
BARIUM	mg/kg	<110	<100	<100 [<95.0]	<100	<21.0	22.0	<100	NA	3.00	NA	<0.0500	<0.0500
CADMIUM	mg/kg	<2.70	<2.60	<2.60 [<2.40]	<2.50	<0.530	<0.480	<2.60	NA	2.00	NA	0.500	0.250
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	5.00	NA	2.00	1.00
LEAD	mg/kg	<27.0	<26.0	<26.0 [<24.0]	<25.0	<5.30	6.20	<26.0	NA	17.0	NA	14.0	4.00
MERCURY	mg/kg	<0.100	<0.100	<0.0800 [<0.100]	<0.100	<0.0900	<0.0900	<0.0800	NA	<0.0200	NA	<0.0200	<0.0200
SELENIUM	mg/kg	<0.500	<0.520	<0.540 [<0.490]	<0.520	<0.480	<0.540	<0.500	NA	75.0	NA	0.800	<0.300
SILVER	mg/kg	<5.30	<5.30	<5.20 [<4.80]	<5.00	<1.00	<0.950	<5.20	NA	NA	NA	NA	NA
Parameters													
TPH	mg/kg	21.0	<13.0	5,800 [5,200]	960	13,000	190	<13.0	NA	NA	NA	NA	NA
SVOCs													
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	<0.625	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<2.00 [<2.00]	<0.300	<8.00	<0.300	<0.330	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.70	<1.70	<8.30 [<8.30]	<1.70	<42.0	<1.70	<2.00	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	<2.00 [<2.00]	<0.300	<8.00	<0.300	<0.330	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70 [<1.70]	<1.70	<1.70	<1.70	<1.70	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	0.460	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA

Table E.14.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	147B1 5 06/08/92	147B1 10 06/08/92	147B1 15 06/08/92	147B1 20 06/08/92	147B1 25 06/08/92	147B1 30 06/08/92	147BG 2 04/06/92	HCF-01 4 - 6 03/28/90	HCF-01 19 - 20 03/28/90	HCF-01 30 03/28/90	HCF-01 35 03/28/90	HCF-01 40 03/28/90
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	2.00 [<0.300]	0.460	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	11.0 [7.80]	2.60	18.0	0.360	<0.300	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
TPHs													
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	2,600	NA	5,200	11,000	2,200
PETROLEUM HYDROCARBONS	mg/kg	21.0	<13.0	5,800 [5,200]	960	13,000	190	<13.0	NA	NA	NA	NA	NA
VOCs													
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [0.0330]	<0.00500	0.00950	<0.00500	<0.00500	NA	<1.25	NA	NA	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.625	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<1.25	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	0.120 [0.600]	0.520	0.600	<0.100	<0.100	NA	NA	NA	NA	NA
ACROLEIN	mg/kg	<0.200	<0.200	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	<0.00500	0.0160 [0.0140]	<0.00500	0.170	<0.00500	<0.00500	NA	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.625	NA	NA	NA
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<1.25	NA	NA	NA
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	0.00650 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA

Table E.14.Attachment-3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		147B1	147B1	147B1	147B1	147B1	147B1	147BG	HCF-01	HCF-01	HCF-01	HCF-01	HCF-01
Sample Depth(ft):		5	10	15	20	25	30	2	4 - 6	19 - 20	30	35	40
Date Collected:	Units	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	06/08/92	04/06/92	03/28/90	03/28/90	03/28/90	03/28/90	03/28/90
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.625	NA	NA	NA
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 1	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<6.25	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<1.25	NA	NA	NA
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<1.25	NA	NA	NA
ETHANOL	mg/kg	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	0.750 [1.50]	0.0460	4.10	<0.00500	<0.00500	NA	NA	NA	NA	NA
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	<0.300	8.10 [4.30]	1.30	14.0	<0.300	<0.300	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.625	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.625	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	NA	<1.25	NA	NA	NA
Xylenes	mg/kg	<0.00500	<0.00500	0.110 [0.120]	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA

Table E.14.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HCF-01 03/08/04	HCF-01 08/11/04
Explosives			
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	<0.000500	<0.000500
2-NITROTOLUENE	mg/L	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	<0.000500	<0.000500
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	<0.000500
4-NITROTOLUENE	mg/L	<0.000500	<0.000500
RDX	mg/L	<0.000500	<0.000500
TETRYL	mg/L	<0.000500	<0.000500
Metals			
ALUMINUM	mg/L	<0.100	<0.100
ARSENIC	mg/L	<0.0100	<0.00500
BARIUM	mg/L	<0.100	0.0290
BERYLLIUM	mg/L	<0.00250	<0.00250
BORON	mg/L	5.98	6.14
CADMIUM	mg/L	<0.00500	<0.00100
Chromium	mg/L	<0.0100	0.00600
COBALT	mg/L	<0.0200	<0.00500
COPPER	mg/L	<0.0125	0.0450
Hexavalent Chromium	mg/L	0.0340	<0.0100
Iron	mg/L	0.179	0.537
LEAD	mg/L	<0.0100	<0.0100
MANGANESE	mg/L	0.452	0.967
MERCURY	mg/L	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.329	0.526
NICKEL	mg/L	<0.0250	0.0200
SELENIUM	mg/L	<0.0500	<0.0100
SILVER	mg/L	<0.0125	<0.00300
STRONTIUM	mg/L	5.08	5.48
TIN	mg/L	<0.0250	<0.0250
VANADIUM (FUME OR DUST)	mg/L	<0.0250	0.0300
ZINC	mg/L	<0.0250	0.0130
Metals-Dissolved			
Aluminum, Dissolved	mg/L	<0.0500	<0.0500
Arsenic, Dissolved	mg/L	<0.0100	<0.00500
Barium, Dissolved	mg/L	<0.100	0.0250
Beryllium, Dissolved	mg/L	<0.00250	0.00400
Boron, Dissolved	mg/L	5.96	6.40
Cadmium, Dissolved	mg/L	<0.0250	<0.00100
Calcium, Dissolved	mg/L	259	311
Chromium, Dissolved	mg/L	<0.0100	<0.00500
Cobalt, Dissolved	mg/L	<0.0250	<0.00500
Copper, Dissolved	mg/L	<0.0125	<0.0125
Iron, Dissolved	mg/L	0.111	0.196
Lead, Dissolved	mg/L	<0.0100	<0.00500
Lithium, Dissolved	mg/L	0.360	NA
Magnesium, Dissolved	mg/L	275	349
Manganese, Dissolved	mg/L	0.428	0.929
Molybdenum, Dissolved	mg/L	0.309	0.443
Nickel, Dissolved	mg/L	<0.0250	0.0140
Potassium, Dissolved	mg/L	85.7	108
Selenium, Dissolved	mg/L	<0.0500	<0.0100
Silver, Dissolved	mg/L	<0.0130	<0.00300
Sodium, Dissolved	mg/L	1,430	1,880
Strontium, Dissolved	mg/L	4.95	5.20
Tin, Dissolved	mg/L	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	<0.0250	0.0240
Zinc, Dissolved	mg/L	<0.0250	0.0100
Parameters			
ALKALINITY	mg/L	344	284
Alkalinity, Bicarbonate	mg/L	344	284
Alkalinity, Carbonate	mg/L	<1.00	<1.00

Table E.14.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HCF-01 03/08/04	HCF-01 08/11/04
Ammonia	mg/L	<1.00	<1.00
Bromide	mg/L	<0.200	<0.200
Chloride (CL)	mg/L	559	558
CONDUCTIVITY	mS/cm	9.14	9.87
CONDUCTIVITY	umhos/cm	9,620	9,060
FLUORIDE	mg/L	3.97	3.95
Hydroxide Alkalinity	mg/L	<1.00	<1.00
Nitrate	mg/L	8.97	15.4
Nitrite	mg/L	<0.100	<0.100
pH	pH Units	7.47	7.29
Phosphorus	mg/L	<0.0500	<0.0500
SILICA	mg/L	36.8	31.0
Silica, Dissolved	mg/L	35.0	37.8
Sulfate	mg/L	4,380	4,820
Temperature	deg c	24.4	23.8
TKN	mg/L	<4.00	<4.00
Total Dissolved Solids	mg/L	8,260	8,730
TOTAL ORGANIC CARBON	mg/L	4.37	2.87
SVOCs			
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<5.00	<5.00
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<5.00	<5.00
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<5.00	<5.00
1-Methylnaphthalene	mg/L	0.0733	0.0816
1-NAPHTHYLAMINE	mg/L	<5.00	<5.00
2,4,5-TRICHLOROPHENOL	mg/L	<5.00	<5.00
2,4,6-Trichlorophenol	mg/L	<5.00	<5.00
2,4-DICHLOROPHENOL	mg/L	<5.00	<5.00
2,4-DIMETHYLPHENOL	mg/L	<5.00	<5.00
2,4-DINITROPHENOL	mg/L	<20.0	<20.0
2,4-DINITROTOLUENE	mg/L	<5.00	<5.00
2,6-DICHLOROPHENOL	mg/L	<5.00	<5.00
2,6-DINITROTOLUENE	mg/L	<5.00	<5.00
2-CHLORONAPHTHALENE	mg/L	<5.00	<5.00
2-CHLOROPHENOL	mg/L	<5.00	<5.00
2-Methyl pyridine	mg/L	<5.00	<5.00
2-Methyl-4,6-Dinitrophenol	mg/L	<5.00	<5.00
2-METHYLNAPHTHALENE	mg/L	0.0839	0.0917
2-Methylphenol	mg/L	<5.00	<5.00
2-Naphthylamine	mg/L	<5.00	<5.00
2-NITROANILINE	mg/L	<5.00	<5.00
2-NITROPHENOL	mg/L	<5.00	<5.00
3,3'-DICHLOROBENZIDINE	mg/L	<5.00	<5.00
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<5.00	<5.00
3-METHYLCHLORANTHRENE	mg/L	<5.00	<5.00
3-Methylphenol	mg/L	<5.00	NA
3-NITROANILINE	mg/L	<5.00	<5.00
4-Aminobiphenyl	mg/L	<5.00	<5.00
4-BROMOPHENYL PHENYL ETHER	mg/L	<5.00	<5.00
4-Chloro-3-methylphenol	mg/L	<5.00	<5.00
4-CHLOROPHENYL PHENYL ETHER	mg/L	<5.00	<5.00
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<5.00	<5.00
4-Methyl Phenol	mg/L	<5.00	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<5.00	<5.00
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<5.00	<5.00

Table E.14.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HCF-01 03/08/04	HCF-01 08/11/04
a,a-Dimethylphenethylamine	mg/L	<5.00	<5.00
Acenaphthene	mg/L	<5.00	<5.00
ACENAPHTHYLENE	mg/L	<5.00	<5.00
ACETOPHENONE	mg/L	<5.00	<5.00
Aniline	mg/L	<5.00	<5.00
ANTHRACENE	mg/L	<5.00	<5.00
BENZIDINE	mg/L	<15.0	<15.0
Benzo(a)anthracene	mg/L	<5.00	<5.00
Benzo(a)pyrene	mg/L	<5.00	<5.00
Benzo(b)fluoranthene	mg/L	<5.00	<5.00
Benzo(g,h,i)perylene	mg/L	<5.00	<5.00
Benzo(k)fluoranthene	mg/L	<5.00	<5.00
BENZOIC ACID	mg/L	<20.0	<20.0
BENZYL ALCOHOL	mg/L	<5.00	<5.00
BENZYL BUTYL PHTHALATE	mg/L	<5.00	<5.00
bis (2-chloroethoxy) methane	mg/L	<5.00	<5.00
bis(2-Chloroethyl) ether	mg/L	<5.00	<5.00
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<10.0	<10.0
CHLOROPHENOLS	mg/L	<5.00	<5.00
CYMENE	mg/L	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<5.00	<5.00
DIBENZ[A,J]ACRIDINE	mg/L	<5.00	<5.00
DIBENZOFURAN	mg/L	0.00779	0.00871
DIETHYL PHTHALATE	mg/L	<5.00	<5.00
DIMETHYL PHTHALATE	mg/L	<5.00	<5.00
Di-n-butyl phthalate	mg/L	<5.00	<5.00
Di-n-octyl phthalate	mg/L	<5.00	<5.00
DIPHENYLAMINE	mg/L	<5.00	<5.00
Diphenylhydrazine	mg/L	<5.00	<5.00
ETHYL METHANESULFONATE	mg/L	<5.00	<5.00
FLUORANTHENE	mg/L	<5.00	<5.00
FLUORENE	mg/L	<5.00	<5.00
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<5.00	<5.00
HEXACHLOROCYCLOPENTADIENE	mg/L	<5.00	<5.00
HEXACHLOROETHANE	mg/L	<5.00	<5.00
Indeno(1,2,3-cd)pyrene	mg/L	<5.00	<5.00
m,p-Cresol	mg/L	NA	<5.00
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<5.00	<5.00
METHYL METHANESULFONATE	mg/L	<5.00	<5.00
NITROBENZENE	mg/L	<5.00	<5.00
N-NITROSODI-N-BUTYLAMINE	mg/L	<5.00	<5.00
n-Nitrosodi-n-propylamine	mg/L	<5.00	<5.00
N-NITROSOPIPERIDINE	mg/L	<5.00	<5.00
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	0.00287
P-CHLOROANILINE	mg/L	<5.00	<5.00
PENTACHLOROBENZENE	mg/L	<5.00	<5.00
PENTACHLORONITROBENZENE	mg/L	<5.00	<5.00
PENTACHLOROPHENOL	mg/L	<5.00	<5.00
PHENACETIN	mg/L	<5.00	<5.00
PHENANTHRENE	mg/L	0.00717	0.0113
PHENOL	mg/L	<5.00	<5.00
P-NITROANILINE	mg/L	<5.00	<5.00
PROPYZAMIDE	mg/L	<5.00	<5.00
PYRENE	mg/L	<5.00	<5.00
PYRIDINE	mg/L	<5.00	<5.00
TPHs			
DRO	mg/L	<50.0	16.2
GRO	mg/L	<0.100	<0.100
VOCs			
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100

Table E.14.Attachment-4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 147
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HCF-01 03/08/04	HCF-01 08/11/04
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100
BENZENE	mg/L	0.00292	0.00152
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<5.00	<5.00
BROMOBENZENE	mg/L	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500
Isopropylbenzene	mg/L	0.00631	0.00668
m,p-Xylene	mg/L	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	<0.000500
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100
NAPHTHALENE	mg/L	0.0703	0.0324
n-Butylbenzene	mg/L	0.00125	0.00168
n-Propylbenzene	mg/L	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100
sec-Butylbenzene	mg/L	0.00486	0.00615
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100
tert-Butylbenzene	mg/L	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100

Note for E.15.Attachments 1-4
Risk Assessment Datasets
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
mS/cm =	microSiemens per centimeter
umhos/cm =	micromhos per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyls
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound
TPH =	Total Petroleum Hydrocarbons

Table E.15.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	HMW-43 1 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-09 1 11/29/93
Metals														
ARSENIC	mg/kg	NA	NA	NA	8.56	3.74	4.86	3.51	<3.10	<2.96	3.57	<3.12	<2.96	2.92
BARIUM	mg/kg	NA	NA	NA	73	97.8	108	97.8	94.4	72.2	112	47.4	85.4	73.5
CADMIUM	mg/kg	NA	NA	NA	<1.12	<5.97	<5.94	<3.06	<6.21	<2.96	<6.22	<6.23	<5.93	<5.83
Chromium	mg/kg	<5.97	<6.26	<13.5	6.4	<29.8	<29.7	<15.3	<31.0	<14.8	<31.1	<31.2	<29.6	<29.2
Hexavalent Chromium	mg/kg	<1.19	<1.25	<1.08	NA	<1.19	<1.19	<1.22	<1.24 J	<1.18	<1.24	<1.25	<1.19	<1.17
LEAD	mg/kg	NA	NA	NA	<2.80	8.17	6.84	6	4.3	6.12	6.3	3.65	5.22	3.87
MERCURY	mg/kg	NA	NA	NA	0.0258	<0.0239	<0.0238	<0.0244	<0.0248	<0.0237	<0.0249	0.0474	<0.0237	<0.0233
SELENIUM	mg/kg	NA	NA	NA	<2.80	<2.98	<2.97	<3.06	<3.10	<2.96	<3.11	<3.12	<2.96	<2.92
SILVER	mg/kg	NA	NA	NA	10.8	<29.8	<29.7	<15.3	48.4	<14.8	54.7	<31.2	72.4	<29.2
Parameters														
TPH	mg/kg	NA	NA	NA	<33.6	<35.8	<35.6	<36.6	<37.2	<35.4	<37.2	<37.3	<35.5	<34.9
SVOCs														
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1-Chloronaphthalene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2-CHLOROPHENOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2-Methylphenol	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
2-NITROANILINE	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
2-NITROPHENOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
3-NITROANILINE	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
4-Methyl Phenol	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249	<0.0237	<0.0233
4-NITROPHENOL	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
Acenaphthene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
ANTHRACENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
BENZIDINE	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
Benzo(a)anthracene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Benzo(a)pyrene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
BENZOIC ACID	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
BENZYL ALCOHOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
DIBENZOFURAN	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Di-n-butyl phthalate	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Di-n-octyl phthalate	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
DIPHENYLAMINE	mg/kg	NA	NA	NA	<1.12	<1.19	<1.19	<1.22	<1.24	<1.18	<1.24 [<1.15]	<1.24	<1.18	<1.16
FLUORANTHENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385

Table E.15.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB05 1 11/30/93	0143SB06 1 11/30/93	HMW-43 1 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-09 1 11/29/93
FLUORENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
HEXACHLOROETHANE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
NITROBENZENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
P-CHLOROANILINE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.00577]	<0.411	<0.391	<0.385
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
PHENANTHRENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
PHENOL	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
P-NITROANILINE	mg/kg	NA	NA	NA	<1.79	<1.91	<1.90	<1.95	<1.99	<1.89	<1.99 [<1.84]	<1.99	<1.90	<1.87
PYRENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
VOCs														
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00672 J [<0.00577]	<0.00623	<0.00593	<0.00583
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,2-Dichloropropane	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
2-butanone	mg/kg	NA	NA	NA	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249	<0.0237	<0.0233
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
ACETONE	mg/kg	NA	NA	NA	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249	<0.0237	<0.0233
ACROLEIN	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
ACRYLONITRILE	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
BENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
BROMOMETHANE	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
CARBON DISULFIDE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
CFC-11	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.00577]	<0.0125	<0.0119	<0.0117
CHLOROBENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
CHLOROETHANE	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
CHLOROFORM	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
CHLOROMETHANE	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
DIBROMOMETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	<0.00597	<0.00594	<0.00611	<0.00621	<0.00592	0.00846 B [0.00830 B]	<0.00623	<0.00593	<0.00583
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
ETHYLBENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
Iodomethane	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249	<0.0237	<0.0233
METHYLBENZENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
NAPHTHALENE	mg/kg	NA	NA	NA	<0.370	<0.394	<0.392	<0.403	<0.410	<0.390	<0.410 [<0.381]	<0.411	<0.391	<0.385
STYRENE (MONOMER)	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
TETRACHLOROETHENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
TRIBOMOMETHANE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846	<0.00623	<0.00593	<0.00583
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583
VINYL ACETATE	mg/kg	NA	NA	NA	<0.0224	<0.0239 J	<0.0238	<0.0244	<0.0248	<0.0237	<0.0338 [<0.0231]	<0.0249	<0.0237	<0.0233
Vinyl Chloride	mg/kg	NA	NA	NA	<0.0112	<0.0119 J	<0.0119	<0.0122	<0.0124	<0.0118	<0.0169 [<0.0115]	<0.0125	<0.0119	<0.0117
Xylenes	mg/kg	NA	NA	NA	<0.00561	<0.00597 J	<0.00594	<0.00611	<0.00621	<0.00592	<0.00846 [<0.00577]	<0.00623	<0.00593	<0.00583

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B9	141B10	141B11	141B12	141B13	141B14
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	5	5	3	4	7
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92
Metals																
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.90	<0.560	<0.420	1.80	0.750	0.960
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	140	<100	<93.0	<88.0	<110	<93.0
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.10	<2.60	<2.30	<2.20	<2.70	<2.30
Chromium	mg/kg	<5.97	<6.44	<6.51	<6.26	<16.1	<16.3	<13.5	<15.3	<6.56	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.19	<1.29	<1.30	<1.25	<1.29	<1.30	<1.08	<1.22	<1.31	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<11.0	<26.0	<23.0	<22.0	<27.0	<23.0
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0900	<0.100	<0.100	<0.0700	<0.100	<0.100
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.600	<0.560	<0.420	<0.00500	<0.550	<0.490
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.10	<5.20	<4.60	<4.40	<5.30	<4.60
Parameters																
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
PCBs																
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Pesticides/Herbicide																
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
SVOCs																
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB040	0143SB044	0143SB049	0143SB051	0143SB054	0143SB059	0143SB061	0143SB064	0143SB069	141B93	141B105	141B115	141B123	141B134	141B147
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	5	5	3	4	7
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
TPHs																
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
VOCs																
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB040	0143SB044	0143SB049	0143SB051	0143SB054	0143SB059	0143SB061	0143SB064	0143SB069	141B93	141B105	141B115	141B123	141B134	141B147
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	5	5	3	4	7
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42	<0.100	<0.100	0.19	0.17	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-11 10 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93
Metals													
ARSENIC	mg/kg	0.590	8.56	9.64	5.48	3.74	3.19	<3.33	4.86	<3.20	<3.35	3.51	3.42
BARIUM	mg/kg	<93.0	73	179	72	97.8	37	70.6	108	74.3	89.7	97.8	102
CADMIUM	mg/kg	<2.30	<1.12	<1.14	<1.28	<5.97	<6.38	<6.66	<5.94	<6.40	<6.69	<3.06	<6.08
Chromium	mg/kg	NA	6.4	19.3	<1.28	<29.8	<31.9	<33.3	<29.7	<32.0	<33.5	<15.3	<30.4
Hexavalent Chromium	mg/kg	NA	NA	NA	<6.41	<1.19	<1.28	<1.33	<1.19	<1.28	<1.34	<1.22	<1.22
LEAD	mg/kg	<23.0	<2.80	14.7	<1.28	8.17	<3.19	<3.33	6.84	<3.20	<3.35	6	<3.04
MERCURY	mg/kg	<0.100	0.0258	<0.0227	0.0386	<0.0239	<0.0255	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0243
SELENIUM	mg/kg	<0.440	<2.80	<2.83	<3.21	<2.98	<3.19	<3.33	<2.97	<3.20	<3.35	<3.06	<3.04
SILVER	mg/kg	<4.60	10.8	8.84	16.7	<29.8	<31.9	74.6	<29.7	38.4	40.2	<15.3	35.3
Parameters													
TPH	mg/kg	<13.0	<33.6	<33.9	<38.5	<35.8	<38.2	<39.8	<35.6	<38.3	<40.1	<36.6	<36.4
PCBs													
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1-Chloronaphthalene	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2,4,5-TRICHLOROPHENOL	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2,4-DINITROPHENOL	mg/kg	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2-CHLOROPHENOL	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
2-METHYLNAPHTHALENE	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2-Methylphenol	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
2-NITROANILINE	mg/kg	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
2-NITROPHENOL	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-11	HMW-43	HMW-43	HMW-43	SWMU 148 SB-01	SWMU 148 SB-01	SWMU 148 SB-01	SWMU 148 SB-02	SWMU 148 SB-02	SWMU 148 SB-02	SWMU 148 SB-03	SWMU 148 SB-03
Sample Depth(ft):		10	1	3	9	1	4	8	2	4	8	1	4
Date Collected:	Units	04/17/92	11/17/93	11/17/93	11/17/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93	11/29/93
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
3-NITROANILINE	mg/kg	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
4-Methyl Phenol	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]
4-NITROPHENOL	mg/kg	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
Acenaphthene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
ACENAPHTHYLENE	mg/kg	<0.300	NA	NA	NA	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
ANTHRACENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
BENZIDINE	mg/kg	<1.70	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
Benzo(a)anthracene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Benzo(a)pyrene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Benzo(b)fluoranthene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Benzo(k)fluoranthene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
BENZOIC ACID	mg/kg	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
BENZYL ALCOHOL	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
DIBENZOFURAN	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
DIETHYL PHTHALATE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Di-n-butyl phthalate	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	0.592	<0.403	<0.401 [<0.426]
Di-n-octyl phthalate	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
DIPHENYLAMINE	mg/kg	NA	<1.12	<1.13	<1.28	<1.19	<1.27 [<1.24]	<1.33	<1.19	<1.28	<1.34	<1.22	<1.21 [<1.29]
FLUORANTHENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
FLUORENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
HEXACHLOROBENZENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
HEXACHLOROETHANE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
M-DICHLOROBENZENE	mg/kg	<0.300	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
P-CHLOROANILINE	mg/kg	NA	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.00621]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.00646]
PENTACHLOROPHENOL	mg/kg	<2.00	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
PHENANTHRENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
PHENOL	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
P-NITROANILINE	mg/kg	NA	<1.79	<1.81	<2.06	<1.91	<2.04 [<1.99]	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]
PYRENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
TPHs													
PETROLEUM HYDROCARBONS	mg/kg	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs													
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-11 10 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93
1,2-Dichloropropane	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
2-butanone	mg/kg	<0.100	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
ACETONE	mg/kg	<0.100	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]
ACROLEIN	mg/kg	<0.200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
ACRYLONITRILE	mg/kg	<0.100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
BENZENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
BROMODICHLOROMETHANE	mg/kg	NA	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
BROMOMETHANE	mg/kg	<0.00500	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
CARBON DISULFIDE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
CFC-11	mg/kg	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.00621]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.00646]
CFC-12	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
CHLOROETHANE	mg/kg	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
CHLOROFORM	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
CHLOROMETHANE	mg/kg	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
cis-1,2-Dichloroethene	mg/kg	NA	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
DIBROMOMETHANE	mg/kg	<0.0200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
DICHLOROMETHANE	mg/kg	<0.00500	NA	NA	NA	<0.00597	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00608 [<0.00646]
ETHANOL	mg/kg	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
ETHYLBENZENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
Iodomethane	mg/kg	<0.0200	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]
METHYLBENZENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
NAPHTHALENE	mg/kg	<0.300	<0.370	<0.374	<0.424	<0.394	<0.421 [<0.410]	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
TRIBOMOMETHANE	mg/kg	NA	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]
VINYL ACETATE	mg/kg	<0.0100	<0.0224	<0.0452	<0.0257	<0.0239 J	<0.0255 [<0.0248]	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]
Vinyl Chloride	mg/kg	<0.0100	<0.0112	<0.0226	<0.0129	<0.0119 J	<0.0128 [<0.0124]	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]
Xylenes	mg/kg	<0.00500	<0.00561	<0.0113	<0.00643	<0.00597 J	<0.00638 [<0.00621]	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93
Metals											
ARSENIC	mg/kg	<3.34	<3.10	NA	<3.46	<2.96	<3.20	<3.41	3.57	3.38	<3.43
BARIUM	mg/kg	77.4	94.4	NA	111	72.2	55.1	95.5	112	97.2	92
CADMIUM	mg/kg	<6.68	<6.21	NA	<3.46	<2.96	<12.8	<6.82	<6.22	<5.92	<6.87
Chromium	mg/kg	<33.4	<31.0	NA	<17.3	<14.8	<32.1	<34.1	<31.1	<29.6	<34.3
Hexavalent Chromium	mg/kg	<1.34	<1.24 J	NA	<1.38	<1.18	<1.28	<1.36	<1.24	<1.18	<1.37
LEAD	mg/kg	<3.34	4.3	NA	<3.46	6.12	3.92	<3.41	6.3	5.44	4.48
MERCURY	mg/kg	<0.0267	<0.0248	NA	<0.0277	<0.0237	<0.0256	<0.0273	<0.0249	<0.0237	<0.0275
SELENIUM	mg/kg	<3.34	<3.10	NA	<3.46	<2.96	<3.20	<3.41	<3.11	<2.96	<3.43
SILVER	mg/kg	74.8	48.4	NA	<17.3	<14.8	<32.1	46.4	54.7	<29.6 J	<34.3
Parameters											
TPH	mg/kg	<39.9	<37.2	<37.8	<41.5	<35.4	<38.4	<40.8	<37.2	<35.5	<41.1
PCBs											
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide											
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs											
1,2,4-TRICHLOROBENZENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
1,2-BENZPHENANTHRACENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
1,4-DICHLOROBENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1-Chloronaphthalene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2,4,5-TRICHLOROPHENOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2,4,6-Trichlorophenol	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2,4-DICHLOROPHENOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2,4-DIMETHYLPHENOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2,4-DINITROPHENOL	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
2,4-DINITROTOLUENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2,6-DINITROTOLUENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2-CHLORONAPHTHALENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2-CHLOROPHENOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
2-METHYLNAPHTHALENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2-Methylphenol	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
2-NITROANILINE	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
2-NITROPHENOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93
3,3'-DICHLOROBENZIDINE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
3-NITROANILINE	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
4-Chloro-3-methylphenol	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
4-Methyl Phenol	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0267	<0.0248	<0.0252	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302
4-NITROPHENOL	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
Acenaphthene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
ACENAPHTHYLENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
ANTHRACENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
BENZIDINE	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
Benzo(a)anthracene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Benzo(a)pyrene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Benzo(b)fluoranthene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Benzo(g,h,i)perylene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Benzo(k)fluoranthene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
BENZOIC ACID	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
BENZYL ALCOHOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
BENZYL BUTYL PHTHALATE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
bis (2-chloroethoxy) methane	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
bis(2-Chloroethyl) ether	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Dibenz(a,h)anthracene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
DIBENZOFURAN	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
DIETHYL PHTHALATE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
DIMETHYL PHTHALATE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Di-n-butyl phthalate	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Di-n-octyl phthalate	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
DIPHENYLAMINE	mg/kg	<1.33	<1.24	<1.26	<1.38	<1.18	<1.28	<1.36	<1.24 [<1.15]	<1.18	<1.37
FLUORANTHENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
FLUORENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
HEXACHLOROBENZENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
HEXACHLOROETHANE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
Indeno(1,2,3-cd)pyrene	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
M-DICHLOROBENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
n-Nitrosodi-n-propylamine	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
N-NITROSODIPHENYLAMINE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
P-CHLOROANILINE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.00577]	<0.391	<0.453
PENTACHLOROPHENOL	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
PHENANTHRENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
PHENOL	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
P-NITROANILINE	mg/kg	<2.13	<1.99	<2.02	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20
PYRENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
TPHs											
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs											
1,1,1-Trichloroethane	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,1,2-TRICHLOROETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,1-DICHLOROETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,1-DICHLOROETHYLENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00672 J [<0.00577]	<0.00758	<0.00755
1,2,3-Trichloropropane	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,2-DICHLOROBENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,2-DICHLOROETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93
1,2-Dichloropropane	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
1,4 Dichloro-2-butene	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
2-butanone	mg/kg	<0.0267	<0.0248	<0.0252	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
ACETONE	mg/kg	<0.0267	<0.0248	<0.0252	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302
ACROLEIN	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
ACRYLONITRILE	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
BENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
BROMODICHLOROMETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
BROMOMETHANE	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
CARBON DISULFIDE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
CARBON TETRACHLORIDE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
CFC-11	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.00577]	<0.0152	<0.0151
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
CHLORODIBROMOMETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
CHLOROETHANE	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
CHLOROFORM	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
CHLOROMETHANE	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
cis-1,2-Dichloroethene	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
cis-1,3-Dichloropropene	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
DIBROMOMETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
DICHLOROMETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	0.00900 B	0.00846 B [0.00830 B]	0.00758 B	0.00755 B
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
ETHYLBENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
Iodomethane	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
METHYL N-BUTYL KETONE	mg/kg	<0.0267	<0.0248	<0.0252	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302
METHYLBENZENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
NAPHTHALENE	mg/kg	<0.440	<0.410	<0.416	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453
STYRENE (MONOMER)	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
TETRACHLOROETHENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
trans-1,2-Dichloroethene	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
trans-1,3-Dichloropropene	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
TRIBOMOMETHANE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846	<0.00758	<0.00755
TRICHLOROETHYLENE	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755
VINYL ACETATE	mg/kg	<0.0267	<0.0248	<0.0252	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302
Vinyl Chloride	mg/kg	<0.0134	<0.0124	<0.0126	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151
Xylenes	mg/kg	<0.00668	<0.00621	<0.00630	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
Metals										
ARSENIC	mg/kg	<3.12	3.46	<3.47	<2.96	<3.27	<3.36	2.92	<3.33	<3.33
BARIUM	mg/kg	47.4	70.5	94.3	85.4	45.8	68.4	73.5	36	62.7
CADMIUM	mg/kg	<6.23	<6.08	<6.93	<5.93	<6.54	<6.71	<5.83	<6.67	<6.67
Chromium	mg/kg	<31.2	<30.4	<34.7	<29.6	<32.7	<33.6	<29.2	<33.3	<33.3
Hexavalent Chromium	mg/kg	<1.25	<1.22 J	<1.39	<1.19	<1.31	<1.34	<1.17	<1.33	<1.33
LEAD	mg/kg	3.65	6.63	4.2	5.22	<3.27	<3.36	3.87	<3.33	<3.33
MERCURY	mg/kg	0.0474	<0.0243	<0.0277	<0.0237	<0.0261	<0.0268	<0.0233	<0.0267	<0.0267
SELENIUM	mg/kg	<3.12	<3.04	<3.47	<2.96	<3.27	<3.36	<2.92	<3.33	<3.33
SILVER	mg/kg	<31.2	<30.4	<34.7	72.4	<32.7	<33.6	<29.2	<33.3	<33.3
Parameters										
TPH	mg/kg	<37.3	<36.4	<41.6	<35.5	<39.1	<40.2	<34.9	<39.9	<39.9
PCBs										
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide										
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
1,2,4-TRICHLOROBENZENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2-BENZPHENANTHRACENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2-DIPHENYLHYDRAZINE	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
1,4-DICHLOROBENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1-Chloronaphthalene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4,5-TRICHLOROPHENOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4,6-Trichlorophenol	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DICHLOROPHENOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DIMETHYLPHENOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DINITROPHENOL	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2,4-DINITROTOLUENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,6-DINITROTOLUENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-CHLORONAPHTHALENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-CHLOROPHENOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methyl-4,6-Dinitrophenol	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-METHYLNAPHTHALENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methylphenol	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-NITROANILINE	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-NITROPHENOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
3,3'-DICHLOROBENZIDINE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3-NITROANILINE	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Chloro-3-methylphenol	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Methyl Phenol	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0249	<0.0243	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
4-NITROPHENOL	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
Acenaphthene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ACENAPHTHYLENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ANTHRACENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZIDINE	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
Benzo(a)anthracene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(a)pyrene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(b)fluoranthene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(g,h,i)perylene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(k)fluoranthene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZOIC ACID	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
BENZYL ALCOHOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZYL BUTYL PHTHALATE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis (2-chloroethoxy) methane	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis(2-Chloroethyl) ether	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Dibenz(a,h)anthracene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIBENZOFURAN	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIETHYL PHTHALATE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIMETHYL PHTHALATE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-butyl phthalate	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-octyl phthalate	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIPHENYLAMINE	mg/kg	<1.24	<1.21	<1.39	<1.18	<1.30	<1.34	<1.16	<1.33	<1.33
FLUORANTHENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
FLUORENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROBENZENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROETHANE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Indeno(1,2,3-cd)pyrene	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
M-DICHLOROBENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
n-Nitrosodi-n-propylamine	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSODIPHENYLAMINE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
P-CHLOROANILINE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PENTACHLOROPHENOL	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PHENANTHRENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PHENOL	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
P-NITROANILINE	mg/kg	<1.99	<1.94	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PYRENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
TPHs										
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1-Trichloroethane	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2-TRICHLOROETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHYLENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2,3-Trichloropropane	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DICHLOROBENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DICHLOROETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.15.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
1,2-Dichloropropane	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,4 Dichloro-2-butene	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
2-butanone	mg/kg	<0.0249	<0.0243	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
ACETONE	mg/kg	<0.0249	<0.0243	<0.0277	<0.0237	<0.0262	0.0374	<0.0233	<0.0233	<0.0267
ACROLEIN	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ACRYLONITRILE	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
BENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BROMODICHLOROMETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BROMOMETHANE	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CARBON DISULFIDE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CARBON TETRACHLORIDE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CFC-11	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLORODIBROMOMETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROETHANE	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CHLOROFORM	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROMETHANE	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
cis-1,2-Dichloroethene	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
cis-1,3-Dichloropropene	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DIBROMOMETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DICHLOROMETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00667	<0.00667
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ETHYLBENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
Iodomethane	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
METHYL N-BUTYL KETONE	mg/kg	<0.0249	<0.0243	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
METHYLBENZENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
NAPHTHALENE	mg/kg	<0.411	<0.401	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
STYRENE (MONOMER)	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TETRACHLOROETHENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,2-Dichloroethene	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,3-Dichloropropene	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRIBOMOMETHANE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRICHLOROETHYLENE	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
VINYL ACETATE	mg/kg	<0.0249	<0.0243	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
Vinyl Chloride	mg/kg	<0.0125	<0.0122	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
Xylenes	mg/kg	<0.00623	<0.00608	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B9	141B10	141B11	141B12	141B13	141B14
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	5	5	3	4	7
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92
Metals																
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.90	<0.560	<0.420	1.80	0.750	0.960
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	140	<100	<93.0	<88.0	<110	<93.0
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.10	<2.60	<2.30	<2.20	<2.70	<2.30
Chromium	mg/kg	<5.97	<6.44	<6.51	<6.26	<16.1	<16.3	<13.5	<15.3	<6.56	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.19	<1.29	<1.30	<1.25	<1.29	<1.30	<1.08	<1.22	<1.31	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<11.0	<26.0	<23.0	<22.0	<27.0	<23.0
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0900	<0.100	<0.100	<0.0700	<0.100	<0.100
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.600	<0.560	<0.420	<0.00500	<0.550	<0.490
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.10	<5.20	<4.60	<4.40	<5.30	<4.60
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other																
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
PCBs																
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
Pesticides/Herbicide																
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670	<0.0670
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340	<0.0340
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670	<0.00670
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
SVOCs																
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B9	141B10	141B11	141B12	141B13	141B14
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	5	5	3	4	7
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		0143SB04	0143SB04	0143SB04	0143SB05	0143SB05	0143SB05	0143SB06	0143SB06	0143SB06	141B9	141B10	141B11	141B12	141B13	141B14
Sample Depth(ft):		0	4	9	1	4	9	1	4	9	3	5	5	3	4	7
Date Collected:	Units	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	11/30/93	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92	05/01/92
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
VOCs																
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42	<0.100	<0.100	0.19	0.17	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	0143SB04 0 11/30/93	0143SB04 4 11/30/93	0143SB04 9 11/30/93	0143SB05 1 11/30/93	0143SB05 4 11/30/93	0143SB05 9 11/30/93	0143SB06 1 11/30/93	0143SB06 4 11/30/93	0143SB06 9 11/30/93	141B9 3 05/01/92	141B10 5 05/01/92	141B11 5 05/01/92	141B12 3 05/01/92	141B13 4 05/01/92	141B14 7 05/01/92
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-025 10 - 11 11/03/06	HLSF-SB-026 10 - 11 11/06/06	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93
Metals														
ARSENIC	mg/kg	<2.00	<2.00	<2.00	<2.00 [<2.00]	NA	0.590	<0.440	8.56	9.64	5.48	11.6	3.74	3.19
BARIUM	mg/kg	27.2	31.8	22.3	38.7 [47.8]	NA	<93.0	<93.0	73	179	72	104	97.8	37
CADMIUM	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]	NA	<2.30	<2.30	<1.12	<1.14	<1.28	<1.33	<5.97	<6.38
Chromium	mg/kg	2.05	2.61	3.81	2.58 [2.93]	NA	NA	NA	6.4	19.3	<1.28	16	<29.8	<31.9
COPPER	mg/kg	1.63	1.5	2.08	2.09 [2.49]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00 [<5.00]	NA	NA	NA	NA	NA	<6.41	NA	<1.19	<1.28
LEAD	mg/kg	<1.00	2.3	2.92	4.42 [5.22]	NA	<23.0	<23.0	<2.80	14.7	<1.28	9.99	8.17	<3.19
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400 [<0.0400]	NA	<0.100	<0.100	0.0258	<0.0227	0.0386	<0.0267	<0.0239	<0.0255
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00 [<1.00]	NA	<0.440	<0.440	<2.80	<2.83	<3.21	<3.33	<2.98	<3.19
SILVER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	NA	<4.60	<4.70	10.8	8.84	16.7	17.3	<29.8	<31.9
SODIUM	mg/kg	655	1,760	980	680 [750]	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	3.73	4.07	5.52	6.58 [7.53]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other														
FOC	%	5.69	5.19	4.9	5.35 [4.59]	4.98	NA	NA	NA	NA	NA	NA	NA	NA
Parameters														
Nitrate + Nitrite	mg/kg	5.15	15.4	1.15	3.16 [2.89]	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	34.9	47	84.1	64.1 [86.0]	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	<13.0	<13.0	<33.6	<33.9	<38.5	<39.9	<35.8	<38.2
PCBs														
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide														
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs														
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.250]	<0.0500	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
1,2-DIPHENYLHYDRAZINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.250]	<0.0100	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1-Chloronaphthalene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
1-Methylnaphthalene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2,4,6-Trichlorophenol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2,4-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2,4-DIMETHYLPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2,4-DINITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-025 10 - 11 11/03/06	HLSF-SB-026 10 - 11 11/06/06	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93
2,4-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2,6-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2-CHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2-Methyl pyridine	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
2-METHYLNAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2-Methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
2-Naphthylamine	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
2-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.700	<0.700	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
3-METHYLCHLORANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
4-Aminobiphenyl	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
4-Chloro-3-methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.700	<0.700	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J	<0.0255 [<0.0248]
4-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
ACENAPHTHYLENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	NA	NA	NA	NA	<0.394	<0.421 [<0.410]
ACETOPHENONE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
BENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<1.70	<1.70	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
Benzo(a)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Benzo(a)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Benzo(b)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Benzo(g,h,i)perylene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Benzo(k)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
BENZOIC ACID	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
BENZYL BUTYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
bis (2-chloroethoxy) methane	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
bis(2-Chloroethyl) ether	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
CHLOROPHENOLS	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
DIBENZ[A,J]ACRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
DIETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
DIMETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Di-n-butyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Di-n-octyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
DIPHENYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<1.12	<1.13	<1.28	<1.33	<1.19	<1.27 [<1.24]
Diphenylhydrazine	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
FLUORENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.250]	<0.0500	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
HEXACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
HEXACHLOROETHANE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-025 10 - 11 11/03/06	HLSF-SB-026 10 - 11 11/06/06	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93
m,p-Cresol	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.250]	<0.0100	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.330	<0.330	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
N-NITROSODI-N-BUTYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
N-NITROSOPIPERIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.00621]
PENTACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<2.00	<2.00	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
PHENACETIN	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
PHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
P-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	<1.79	<1.81	<2.06	<2.13	<1.91	<2.04 [<1.99]
PROPYZAMIDE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
PYRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	NA	NA	NA	NA	NA	NA	NA
TPHs														
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0 [<50.0]	<50.0	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	<13.0	<13.0	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.250]	<0.0100	<0.300	<0.300	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500 [<0.500]	<0.500	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.100	<0.100	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J	<0.0255 [<0.0248]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J	<0.0255 [<0.0248]
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	<0.200	<0.200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.100	<0.100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.00500	<0.00500	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.00621]
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-024 10 - 11 11/06/06	HLSF-SB-025 10 - 11 11/03/06	HLSF-SB-026 10 - 11 11/06/06	HLSF-SB-027 10 - 12 11/07/06	HLSF-SB-027 15 - 16 11/07/06	HMW-11 10 04/17/92	HMW-11 15 04/17/92	HMW-43 1 11/17/93	HMW-43 3 11/17/93	HMW-43 9 11/17/93	HMW-43 18 11/17/93	SWMU 148 SB-01 1 11/29/93	SWMU 148 SB-01 4 11/29/93
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.00500	<0.00500	NA	NA	NA	NA	<0.00597	<0.00638 [<0.00621]
ETHANOL	mg/kg	NA	NA	NA	NA	NA	<1.00	<1.00	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0200	<0.0200	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J	<0.0255 [<0.0248]
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.250]	<0.0500	<0.300	<0.300	<0.370	<0.374	<0.424	<0.440	<0.394	<0.421 [<0.410]
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0224	<0.0452	<0.0257	<0.0267	<0.0239 J	<0.0255 [<0.0248]
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0112	<0.0226	<0.0129	<0.0133	<0.0119 J	<0.0128 [<0.0124]
Xylenes	mg/kg	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00561	<0.0113	<0.00643	<0.00667	<0.00597 J	<0.00638 [<0.00621]

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
Metals										
ARSENIC	mg/kg	<3.33	4.86	<3.20	<3.35	3.51	3.42	<3.34	<3.10	NA
BARIUM	mg/kg	70.6	108	74.3	89.7	97.8	102	77.4	94.4	NA
CADMIUM	mg/kg	<6.66	<5.94	<6.40	<6.69	<3.06	<6.08	<6.68	<6.21	NA
Chromium	mg/kg	<33.3	<29.7	<32.0	<33.5	<15.3	<30.4	<33.4	<31.0	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.33	<1.19	<1.28	<1.34	<1.22	<1.22	<1.34	<1.24 J	NA
LEAD	mg/kg	<3.33	6.84	<3.20	<3.35	6	<3.04	<3.34	4.3	NA
MERCURY	mg/kg	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0243	<0.0267	<0.0248	NA
SELENIUM	mg/kg	<3.33	<2.97	<3.20	<3.35	<3.06	<3.04	<3.34	<3.10	NA
SILVER	mg/kg	74.6	<29.7	38.4	40.2	<15.3	35.3	74.8	48.4	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other										
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters										
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<39.8	<35.6	<38.3	<40.1	<36.6	<36.4	<39.9	<37.2	<37.8
PCBs										
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide										
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1-Chloronaphthalene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4,6-Trichlorophenol	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4-DICHLOROPHENOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4-DIMETHYLPHENOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,4-DINITROPHENOL	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
2,4-DINITROTOLUENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-CHLOROPHENOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
2-METHYLNAPHTHALENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Methylphenol	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
2-NITROPHENOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
3,3'-DICHLOROBENZIDINE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-Chloro-3-methylphenol	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
4-NITROPHENOL	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
ACENAPHTHYLENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BENZIDINE	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
Benzo(a)anthracene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(a)pyrene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(b)fluoranthene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(g,h,i)perylene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Benzo(k)fluoranthene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BENZOIC ACID	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
BENZYL ALCOHOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BENZYL BUTYL PHTHALATE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
bis (2-chloroethoxy) methane	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
bis(2-Chloroethyl) ether	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIETHYL PHTHALATE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIMETHYL PHTHALATE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Di-n-butyl phthalate	mg/kg	<0.439	<0.392	<0.422	0.592	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Di-n-octyl phthalate	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
DIPHENYLAMINE	mg/kg	<1.33	<1.19	<1.28	<1.34	<1.22	<1.21 [<1.29]	<1.33	<1.24	<1.26
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
FLUORENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLOROBENZENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
HEXACHLOROETHANE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
Indeno(1,2,3-cd)pyrene	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
N-NITROSODIPHENYLAMINE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.00646]	<0.440	<0.410	<0.416
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
PHENOL	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
P-NITROANILINE	mg/kg	<2.13	<1.90	<2.05	<2.14	<1.95	<1.94 [<2.07]	<2.13	<1.99	<2.02
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs										
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1,2-TRICHLOROETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1-DICHLOROETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1-DICHLOROETHYLENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,2-DICHLOROETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,2-Dichloropropane	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
ACROLEIN	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
ACRYLONITRILE	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
BENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
BROMOMETHANE	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
CARBON DISULFIDE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CARBON TETRACHLORIDE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CFC-11	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.00646]	<0.0134	<0.0124	<0.0126
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CHLOROETHANE	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
CHLOROFORM	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
CHLOROMETHANE	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
cis-1,2-Dichloroethene	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-01 8 11/29/93	SWMU 148 SB-02 2 11/29/93	SWMU 148 SB-02 4 11/29/93	SWMU 148 SB-02 8 11/29/93	SWMU 148 SB-03 1 11/29/93	SWMU 148 SB-03 4 11/29/93	SWMU 148 SB-03 8 11/29/93	SWMU 148 SB-04 1 11/29/93	SWMU 148 SB-04 4 11/29/93
cis-1,3-Dichloropropene	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
DIBROMOMETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
DICHLOROMETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00608 [<0.00646]	<0.00668	<0.00621	<0.00630
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
ETHYLBENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
Iodomethane	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
METHYLBENZENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.439	<0.392	<0.422	<0.442	<0.403	<0.401 [<0.426]	<0.440	<0.410	<0.416
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
trans-1,2-Dichloroethene	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
trans-1,3-Dichloropropene	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611	<0.00668	<0.00621	<0.00630
TRICHLOROETHYLENE	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630
VINYL ACETATE	mg/kg	<0.0266	<0.0238	<0.0256	<0.0268	<0.0244	<0.0244 [<0.0258]	<0.0267	<0.0248	<0.0252
Vinyl Chloride	mg/kg	<0.0133	<0.0119	<0.0128	<0.0134	<0.0122	<0.0122 [<0.0129]	<0.0134	<0.0124	<0.0126
Xylenes	mg/kg	<0.00666	<0.00594	<0.00640	<0.00669	<0.00611	<0.00611 [<0.00646]	<0.00668	<0.00621	<0.00630

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93
Metals										
ARSENIC	mg/kg	<3.46	<2.96	<3.20	<3.41	3.57	3.38	<3.43	<3.12	3.46
BARIUM	mg/kg	111	72.2	55.1	95.5	112	97.2	92	47.4	70.5
CADMIUM	mg/kg	<3.46	<2.96	<12.8	<6.82	<6.22	<5.92	<6.87	<6.23	<6.08
Chromium	mg/kg	<17.3	<14.8	<32.1	<34.1	<31.1	<29.6	<34.3	<31.2	<30.4
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.38	<1.18	<1.28	<1.36	<1.24	<1.18	<1.37	<1.25	<1.22 J
LEAD	mg/kg	<3.46	6.12	3.92	<3.41	6.3	5.44	4.48	3.65	6.63
MERCURY	mg/kg	<0.0277	<0.0237	<0.0256	<0.0273	<0.0249	<0.0237	<0.0275	0.0474	<0.0243
SELENIUM	mg/kg	<3.46	<2.96	<3.20	<3.41	<3.11	<2.96	<3.43	<3.12	<3.04
SILVER	mg/kg	<17.3	<14.8	<32.1	46.4	54.7	<29.6 J	<34.3	<31.2	<30.4
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other										
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters										
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<41.5	<35.4	<38.4	<40.8	<37.2	<35.5	<41.1	<37.3	<36.4
PCBs										
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide										
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs										
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1-Chloronaphthalene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2,4,6-Trichlorophenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2,4-DICHLOROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2,4-DIMETHYLPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2,4-DINITROPHENOL	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93
2,4-DINITROTOLUENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2-CHLOROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
2-METHYLNAPHTHALENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2-Methylphenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
2-NITROPHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
3,3'-DICHLOROBENZIDINE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
4-Chloro-3-methylphenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243
4-NITROPHENOL	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
ACENAPHTHYLENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
BENZIDINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
Benzo(a)anthracene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Benzo(a)pyrene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Benzo(b)fluoranthene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Benzo(g,h,i)perylene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Benzo(k)fluoranthene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
BENZOIC ACID	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
BENZYL ALCOHOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
BENZYL BUTYL PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
bis (2-chloroethoxy) methane	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
bis(2-Chloroethyl) ether	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
DIETHYL PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
DIMETHYL PHTHALATE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Di-n-butyl phthalate	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Di-n-octyl phthalate	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
DIPHENYLAMINE	mg/kg	<1.38	<1.18	<1.28	<1.36	<1.24 [<1.15]	<1.18	<1.37	<1.24	<1.21
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
FLUORENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
HEXACHLOROBENZENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
HEXACHLOROETHANE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
Indeno(1,2,3-cd)pyrene	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
N-NITROSODIPHENYLAMINE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.00577]	<0.391	<0.453	<0.411	<0.401
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
PHENOL	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
P-NITROANILINE	mg/kg	<2.22	<1.89	<2.05	<2.18	<1.99 [<1.84]	<1.90	<2.20	<1.99	<1.94
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs										
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,1,2-TRICHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,1-DICHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,1-DICHLOROETHYLENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00672 J [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,2-DICHLOROETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,2-Dichloropropane	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243
ACROLEIN	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
ACRYLONITRILE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
BENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
BROMOMETHANE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
CARBON DISULFIDE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
CARBON TETRACHLORIDE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
CFC-11	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.00577]	<0.0152	<0.0151	<0.0125	<0.0122
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
CHLOROETHANE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
CHLOROFORM	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
CHLOROMETHANE	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
cis-1,2-Dichloroethene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-04 9 11/29/93	SWMU 148 SB-05 1 11/29/93	SWMU 148 SB-05 4 11/29/93	SWMU 148 SB-05 9 11/29/93	SWMU 148 SB-06 1 11/29/93	SWMU 148 SB-06 4 11/29/93	SWMU 148 SB-06 9 11/29/93	SWMU 148 SB-07 1 11/29/93	SWMU 148 SB-07 4 11/29/93
cis-1,3-Dichloropropene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
DIBROMOMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
DICHLOROMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	0.00900 B	0.00846 B [0.00830 B]	0.00758 B	0.00755 B	<0.00623	<0.00608
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
ETHYLBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
Iodomethane	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243
METHYLBENZENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.457	<0.390	<0.423	<0.450	<0.410 [<0.381]	<0.391	<0.453	<0.411	<0.401
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
trans-1,2-Dichloroethene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
trans-1,3-Dichloropropene	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846	<0.00758	<0.00755	<0.00623	<0.00608
TRICHLOROETHYLENE	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608
VINYL ACETATE	mg/kg	<0.0277	<0.0237	<0.0256	<0.0360	<0.0338 [<0.0231]	<0.0303	<0.0302	<0.0249	<0.0243
Vinyl Chloride	mg/kg	<0.0138	<0.0118	<0.0128	<0.0180	<0.0169 [<0.0115]	<0.0152	<0.0151	<0.0125	<0.0122
Xylenes	mg/kg	<0.00692	<0.00592	<0.00641	<0.00900	<0.00846 [<0.00577]	<0.00758	<0.00755	<0.00623	<0.00608

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
Metals								
ARSENIC	mg/kg	<3.47	<2.96	<3.27	<3.36	2.92	<3.33	<3.33
BARIUM	mg/kg	94.3	85.4	45.8	68.4	73.5	36	62.7
CADMIUM	mg/kg	<6.93	<5.93	<6.54	<6.71	<5.83	<6.67	<6.67
Chromium	mg/kg	<34.7	<29.6	<32.7	<33.6	<29.2	<33.3	<33.3
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<1.39	<1.19	<1.31	<1.34	<1.17	<1.33	<1.33
LEAD	mg/kg	4.2	5.22	<3.27	<3.36	3.87	<3.33	<3.33
MERCURY	mg/kg	<0.0277	<0.0237	<0.0261	<0.0268	<0.0233	<0.0267	<0.0267
SELENIUM	mg/kg	<3.47	<2.96	<3.27	<3.36	<2.92	<3.33	<3.33
SILVER	mg/kg	<34.7	72.4	<32.7	<33.6	<29.2	<33.3	<33.3
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA
Other								
FOC	%	NA	NA	NA	NA	NA	NA	NA
Parameters								
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<41.6	<35.5	<39.1	<40.2	<34.9	<39.9	<39.9
PCBs								
Aroclor 1221	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	mg/kg	NA	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide								
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/kg	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/kg	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/kg	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA
CHLORDANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/kg	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/kg	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	NA	NA	NA	NA
G-BHC	mg/kg	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/kg	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA
SVOCs								
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1,2-DIPHENYLHYDRAZINE	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1-Chloronaphthalene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4,6-Trichlorophenol	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DICHLOROPHENOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DIMETHYLPHENOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,4-DINITROPHENOL	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
2,4-DINITROTOLUENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-CHLOROPHENOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-METHYLNAPHTHALENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Methylphenol	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
2-NITROPHENOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,3'-DICHLOROBENZIDINE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Chloro-3-methylphenol	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
4-NITROPHENOL	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ACENAPHTHYLENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZIDINE	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
Benzo(a)anthracene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(a)pyrene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(b)fluoranthene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(g,h,i)perylene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Benzo(k)fluoranthene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZOIC ACID	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
BENZYL ALCOHOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BENZYL BUTYL PHTHALATE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis (2-chloroethoxy) methane	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
bis(2-Chloroethyl) ether	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIETHYL PHTHALATE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIMETHYL PHTHALATE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-butyl phthalate	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Di-n-octyl phthalate	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
DIPHENYLAMINE	mg/kg	<1.39	<1.18	<1.30	<1.34	<1.16	<1.33	<1.33
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
FLUORENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROBENZENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
HEXACHLOROETHANE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
Indeno(1,2,3-cd)pyrene	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSODIPHENYLAMINE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PHENOL	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
P-NITROANILINE	mg/kg	<2.22	<1.90	<2.09	<2.15	<1.87	<2.13	<2.13
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA
TPHs								
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA
VOCs								
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1,2-TRICHLOROETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-DICHLOROETHYLENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-DICHLOROETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,2-Dichloropropane	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.0277	<0.0237	<0.0262	0.0374	<0.0233	<0.0233	<0.0267
ACROLEIN	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ACRYLONITRILE	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
BENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
BROMOMETHANE	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CARBON DISULFIDE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CARBON TETRACHLORIDE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CFC-11	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROETHANE	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
CHLOROFORM	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
CHLOROMETHANE	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
cis-1,2-Dichloroethene	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.15.Attachment 3
Soil Risk Assessment Dataset
Tota Soil Depth Interval
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	SWMU 148 SB-07 9 11/29/93	SWMU 148 SB-08 1 11/29/93	SWMU 148 SB-08 4 11/29/93	SWMU 148 SB-08 9 11/29/93	SWMU 148 SB-09 1 11/29/93	SWMU 148 SB-09 4 11/29/93	SWMU 148 SB-09 9 11/29/93
cis-1,3-Dichloropropene	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DIBROMOMETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
DICHLOROMETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00667	<0.00667
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
ETHYLBENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
Iodomethane	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
METHYLBENZENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.458	<0.391	<0.431	<0.443	<0.385	<0.440	<0.440
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,2-Dichloroethene	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
trans-1,3-Dichloropropene	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
TRICHLOROETHYLENE	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667
VINYL ACETATE	mg/kg	<0.0277	<0.0237	<0.0262	<0.0268	<0.0233	<0.0233	<0.0267
Vinyl Chloride	mg/kg	<0.0139	<0.0119	<0.0131	<0.0134	<0.0117	<0.0117	<0.0133
Xylenes	mg/kg	<0.00693	<0.00593	<0.00654	<0.00671	<0.00583	<0.00583	<0.00667

Table E.15.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
Explosives																		
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
2,6-DNT / 2,4-DNT	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	0.000702	NA	0.000939	0.00063	0.000897	NA	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
3-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
4-NITROTOLUENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
RDX	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
TETRYL	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
Metals																		
ALUMINUM	mg/L	3.9	0.337	<0.0300	1.34	0.051	<0.0300	NA	1.86	0.52	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA
ANTIMONY	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0200
ARSENIC	mg/L	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100
BARIUM	mg/L	<0.100	<0.100	0.013	0.035	0.026	0.042	NA	<0.100	<0.100	0.012	0.011	0.017	<0.0100	<0.0100	0.01	0.01	0.01
BERYLLIUM	mg/L	<0.00250	0.004	0.003	<0.00250	0.007	<0.00250	NA	<0.00250	0.004	<0.00250	<0.00250	0.008	<0.00250	NA	<0.00250	<0.00200	<0.00200
BORON	mg/L	4.42	4.67	5.23	3.94	5.14	4.26	NA	4.67	4.49	3.95	4.03	3.46	2.75	NA	NA	NA	NA
CADMIUM	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	0.006	<0.00100	0.003	<0.00500	<0.00500	<0.00100	<0.00100	0.007	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200
CALCIUM METAL	mg/L	NA	NA	NA	NA	357	454	NA	NA	NA	NA	NA	493	569	NA	NA	NA	NA
Chromium	mg/L	0.15	0.18	0.165	<0.0100	0.15	0.115	0.121	<0.0100	<0.0100	<0.0100	<0.0100	0.02	<0.00500	<0.00500	<0.00500	0.008	<0.00500
COBALT	mg/L	<0.0200	<0.0200	<0.0200	<0.00500	0.006	<0.00500	NA	<0.0200	<0.0200	<0.0200	<0.00500	0.006	<0.00500	NA	<0.00500	<0.00200	<0.00200
COPPER	mg/L	<0.0125	0.042	0.078	0.046	0.046	0.012	<0.00500	<0.0125	0.028	0.011	<0.00500	0.005	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CYANIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/L	0.263	0.22	0.178	0.188	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA
Iron	mg/L	2.18	0.267	0.025	0.944	0.081	0.134	NA	1.14	0.365	<0.0100	0.017	0.014	<0.0100	NA	NA	NA	NA
LEAD	mg/L	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	0.813	0.382	NA	NA	NA	NA	NA	0.813	0.175	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	695	780	NA	NA	NA	NA	NA	414	467	NA	NA	NA	NA
MANGANESE	mg/L	0.032	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500	NA	0.026	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA
MERCURY	mg/L	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.331	0.352	0.285	0.245	0.32	0.268	NA	0.242	0.239	0.158	0.226	0.21	0.205	NA	NA	NA	NA
NICKEL	mg/L	<0.0250	<0.0250	<0.0100	<0.0100	0.012	0.012	NA	<0.0250	<0.0250	<0.0100	<0.0100	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500
POTASSIUM	mg/L	NA	NA	NA	NA	105	126	NA	NA	NA	NA	NA	97.4	87.2	NA	NA	NA	NA
SELENIUM	mg/L	<0.0500	<0.0500	0.129	<0.0100	0.083	0.08	NA	<0.0500	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0100	0.031
SILVER	mg/L	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500
SODIUM	mg/L	NA	NA	NA	NA	2,470	3,060	3,640	NA	NA	NA	NA	686	959	1,190	NA	NA	NA
STRONTIUM	mg/L	7.03	6.32	16.7	11.4	5.65	15	NA	5.15	5.05	11.2	8.8	5.31	4.6	NA	NA	NA	NA
THALLIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0500
TIN	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	0.037	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.100
Total Cyanide	mg/L	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	NA
VANADIUM (FUME OR DUST)	mg/L	<0.0250	0.039	0.037	0.065	0.07	0.035	NA	0.026	0.025	<0.0250	0.026	0.048	0.013	NA	0.02	0.022	0.018
ZINC	mg/L	<0.0250	<0.0250	<0.00500	<0.00500	0.013	0.021	<0.00500	<0.0250	<0.0250	<0.00500	<0.00500	0.014	0.019	<0.00500	<0.0100	<0.00700	<0.00500
Metals-Dissolved																		
Aluminum, Dissolved	mg/L	<0.0500	<0.0500	<0.0500	0.7	<0.0300	<0.0300	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA
Barium, Dissolved	mg/L	<0.100	<0.0100	0.013	<0.0100	0.02	0.034	NA	<0.100	0.014	0.01	0.011	<0.0100	<0.0100	<0.0100	NA	NA	NA
Beryllium, Dissolved	mg/L	<0.00250	<0.00250	0.003	<0.00250	0.007	<0.00250	NA	<0.00250	<0.00250	0.011	<0.00250	0.008	<0.00250	NA	NA	NA	NA
Boron, Dissolved	mg/L	4.39	5.54	4.84	3.56	5.06	3.61	NA	4.53	5.02	3.81	4.02	3.41	2.87	NA	NA	NA	NA
Cadmium, Dissolved	mg/L	<0.0250	<0.00100	<0.00100	<0.00100	0.006	<0.00100	<0.00100	<0.0250	<0.00100	<0.00100	<0.00100	0.007	<0.00100	<0.00100	NA	NA	NA
Calcium, Dissolved	mg/L	317	352	382	519	368	369	NA	422	467	503	512	468	509	NA	NA	NA	NA
Chromium, Dissolved	mg/L	0.15	0.21	0.165	<0.00500	0.15	0.068	0.095	<0.0100	<0.00500	<0.0100	<0.00500	0.019	<0.00500	<0.00500	NA	NA	NA
Cobalt, Dissolved	mg/L	<0.0250	<0.00500	<0.0250	<0.00500	0.006	<0.00500	NA	<0.0250	<0.00500	<0.0250	<0.00500	0.006	<0.00500	NA	NA	NA	NA
Copper, Dissolved	mg/L	<0.0125	<0.0125	0.077	0.04	0.046	<0.0125	<0.0125	<0.0125	0.035	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	NA	NA	NA
Dissolved Mercury	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000200	NA	NA	NA
Iron, Dissolved	mg/L	<0.0500	<0.0500	0.012	<0.0100	<0.0100	0.012	NA	<0.0500	<0.0500	<0.0100	<0.0100	0.012	0.012	NA	NA	NA	NA
Lead, Dissolved	mg/L	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA
Lithium, Dissolved	mg/L	<0.00500	0.977	0.991	0.6	0.803	0.155	NA	0.451	0.908	0.805	0.47	0.807	0.176	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	590	791	811	426	748	714	NA	354	401	405	421	394	410	NA	NA	NA	NA
Manganese, Dissolved	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	0.331	0.395	0.262	0.225	0.32	0.224	NA	0.234	0.282	0.146	0.216	0.21	0.207	NA	NA	NA	NA

Table E.15.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
Nickel, Dissolved	mg/L	<0.0250	<0.00500	<0.0250	<0.00500	0.012	0.008	NA	<0.0250	0.009	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA
Potassium, Dissolved	mg/L	113	NA	NA	NA	98.2	106	NA	92.5	NA	NA	NA	106	105	NA	NA	NA	NA
Selenium, Dissolved	mg/L	0.123	<0.0100	0.129	<0.0100	0.083	0.06	NA	<0.0500	<0.0100	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA
Silver, Dissolved	mg/L	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	NA	NA
Sodium, Dissolved	mg/L	2,560	NA	2,710	861	2,270	1,890	3,360	832	NA	652	910	677	704	997	NA	NA	NA
Strontium, Dissolved	mg/L	6.94	6.94	15.4	6.9	5.56	6.5	NA	5.01	5.24	10.1	7.01	5.27	4.5	NA	NA	NA	NA
Tin, Dissolved	mg/L	<0.0250	<0.0250	<0.0250	<0.0250	0.035	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA
Vanadium, Dissolved	mg/L	0.035	<0.00500	0.036	0.059	0.068	0.02	NA	<0.0250	0.022	<0.0250	<0.00500	0.048	<0.00500	NA	NA	NA	NA
Zinc, Dissolved	mg/L	<0.0250	0.021	<0.0250	<0.00500	0.013	<0.00500	<0.00500	<0.0250	0.013	<0.0250	<0.00500	0.014	0.008	<0.00500	NA	NA	NA
Parameters																		
ALKALINITY	mg/L	172	202	158	156	162	168	154	142	146	156	158	164	158	154	156	144	150
Alkalinity, Bicarbonate	mg/L	172	202	158	156	162	168	154	142	146	156	158	164	158	154	156	144	150
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA
Bromide	mg/L	1.63	<0.200	<0.200	<0.200	<0.200	1.56	3.43	0.7	<0.200	0.62	0.69	<0.200	<0.200	<1.00	0.52	NA	NA
Chloride (CL)	mg/L	2,300	2,360	2,360	1,980	2,270	2,450	2,160	476	462	352	418	447	444	595	422	297	424
CONDUCTIVITY	mS/cm	17.9	NA	18.6	17.8	16.8	16.4	16	8.14	NA	7.41	7.47	6.67	7.07	7.39	7.07	6.28	7.02
CONDUCTIVITY	umhos/cm	1,820	17,400	17,200	17,400	15,700	15,600	15,600	8,310	7,780	6,610	7,600	6,980	6,590	73,500	7,420	6,400	6,800
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0229	NA	NA	NA
FLUORIDE	mg/L	3.23	<0.200	3.28	3.25	5.59	7.02	6.68	3.35	3.35	3.21	3.35	3.42	4.13	4.01	4.02	4.29	4.35
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	80.5	82.2	82.4	69.6	16.5	82.1	78.2	13.6	13	9.66	16.8	82.8	14.3	24.7	NA	NA	NA
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.98	11.4	131
Nitrite	mg/L	<0.100	<0.100	<0.100	<0.100	<0.200	<0.200	<1.00	<0.100	<0.100	<0.100	<0.100	<0.200	<0.200	<1.00	NA	NA	NA
PERCHLORATE	mg/L	NA	NA	NA	NA	0.0034	<0.0100	NA	NA	NA	NA	NA	<0.00500	<0.00500	NA	NA	NA	NA
pH	pH Units	7.6	7.54	7.76	7.54	7.74	8.31	7.53	7.5	7.66	7.45	7.42	7.5	8.04	7.62	7.48	7.41	7.37
Phosphorus	mg/L	0.085	NA	<0.0500	0.199	0.057	<0.0500	0.069	<0.0500	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA
SILICA	mg/L	31.5	27.2	26.2	31.1	32.2	29.6	NA	29.5	26.1	28.3	25.2	34.4	29.2	NA	NA	NA	NA
Silica, Dissolved	mg/L	29.2	35.9	24.1	31	31.3	22.3	NA	29.2	32	27.3	23.8	34.2	30	NA	NA	NA	NA
Sulfate	mg/L	7,480	7,230	7,560	7,200	7,410	7,710	7,590	4,680	4,360	3,640	4,120	3,920	4,080	4,570	4,490	3,670	4,100
Temperature	deg c	22.1	NA	20.1	29	20	25.4	17.8	21.4	NA	23.8	28.1	19.8	24.5	18.9	25.1	23	23.2
TKN	mg/L	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	NA	<4.00	<4.00	<4.00	<4.00	<4.00	4.2	NA	NA	NA	NA
Total Dissolved Solids	mg/L	15,800	16,200	15,000	15,800	12,500	14,000	14,200	7,500	7,630	6,420	7,130	5,880	6,090	6,540	7,230	6,160	6,440
TOTAL ORGANIC CARBON	mg/L	2.43	1.6	1.47	4.03	1.7	1.6	NA	1.99	<1.00	1.04	12.1	1.3	1.1	NA	1.88	1.18	NA
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.15.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
2-Naphthylamine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl Phenol	mg/L	<5.00	NA	<0.00500	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroisopropyl) ether	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500	<0.000500	<0.00500

Table E.15.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
N-NITROSODI-N-BUTYLAMINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
P-CHLOROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TPHs																		
DRO	mg/L	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00	<5.00
GRO	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Oil and Grease	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	0.0019	0.00186	0.00167	<0.00100	0.00178	0.00163	0.00153	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	0.00166	0.0014	0.00179	<0.00100	0.00219	0.00195	0.00183	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	0.0017	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00191	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.15.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 148
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-11 02/18/04	HMW-11 07/26/04	HMW-11 04/07/05	HMW-11 08/11/05	HMW-11 02/22/06	HMW-11 08/30/06	HMW-11 12/19/06	HMW-43 02/18/04	HMW-43 07/27/04	HMW-43 04/07/05	HMW-43 08/11/05	HMW-43 02/22/06	HMW-43 08/29/06	HMW-43 12/19/06	HMW-43 09/18/07	HMW-43 04/03/08	HMW-43 08/13/08
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.0438	0.0422	0.0383	<0.00100	0.0356	0.0359	0.0318	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Notes for E.16.Attachments 1-3
Risk Assessment Datasets
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

% =	Percentage
< =	Result is non-detect
[ ] =	Indicates field duplicate result
deg c =	Degrees Celsius
J =	Laboratory qualifier, indicates estimated result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
umhos/cm =	micromhos per centimeter
mS/cm =	microSiemens per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyl
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound

Table E.16.Attachment-1
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92
Metals			
ARSENIC	mg/kg	0.78	<0.430
BARIUM	mg/kg	<98.0	<110
CADMIUM	mg/kg	<2.50	<2.70
LEAD	mg/kg	<25.0	<27.0
MERCURY	mg/kg	<0.100	<0.100
SELENIUM	mg/kg	<0.520	<0.430
SILVER	mg/kg	<4.90	<5.50
Parameters			
TPH	mg/kg	<14.0	<14.0
PCBs			
Aroclor 1221	mg/kg	<0.0340	<0.0340
Aroclor 1232	mg/kg	<0.0340	<0.0340
Aroclor 1242	mg/kg	<0.0340	<0.0340
Aroclor 1254	mg/kg	<0.0340	<0.0340
Aroclor 1260	mg/kg	<0.0340	<0.0340
Aroclor-1016	mg/kg	<0.0340	<0.0340
Aroclor-1248	mg/kg	<0.0340	<0.0340
Pesticides/Herbicide			
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340
4,4-DDD	mg/kg	<0.00670	<0.00670
4,4-DDE	mg/kg	<0.00670	<0.00670
4,4-DDT	mg/kg	<0.00670	<0.00670
ALDRIN	mg/kg	<0.00340	<0.00340
alpha-BHC	mg/kg	<0.00340	<0.00340
beta-BHC	mg/kg	<0.00340	<0.00340
CAMPHECHLOR	mg/kg	<0.0670	<0.0670
CHLORDANE	mg/kg	<0.0340	<0.0340
D-BHC	mg/kg	<0.00340	<0.00340
DIELDRIN	mg/kg	<0.00670	<0.00670
Endosulfan I	mg/kg	<0.00340	<0.00340
Endosulfan II	mg/kg	<0.00670	<0.00670
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670
ENDRIN	mg/kg	<0.00670	<0.00670
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670
G-BHC	mg/kg	<0.00340	<0.00340
HEPTACHLOR	mg/kg	<0.00340	<0.00340
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340
SVOCs			
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	<0.000300	<0.000300
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.000330	<0.000330
2-NITROPHENOL	mg/kg	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00
Acenaphthene	mg/kg	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	<0.000300	<0.000300

Table E.16.Attachment-1
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92
ANTHRACENE	mg/kg	<0.300	<0.300
BENZIDINE	mg/kg	<1.70	<1.70
Benzo(a)anthracene	mg/kg	<0.300	<0.300
Benzo(a)pyrene	mg/kg	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300
BENZOIC ACID	mg/kg	<2.00	<2.00
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	<0.300	<0.300
FLUORANTHENE	mg/kg	<0.300	<0.300
FLUORENE	mg/kg	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	<0.300	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330
NITROBENZENE	mg/kg	<0.300	<0.300
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00
PHENANTHRENE	mg/kg	<0.300	<0.300
PHENOL	mg/kg	<0.300	<0.300
PYRENE	mg/kg	<0.300	<0.300
TPHs			
PETROLEUM HYDROCARBONS	mg/kg	<14.0	<14.0
VOCs			
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200
2-butanone	mg/kg	<0.100	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100
ACETONE	mg/kg	0.37	<0.100
ACROLEIN	mg/kg	<0.200	<0.200
ACRYLONITRILE	mg/kg	<0.100	<0.100
BENZENE	mg/kg	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300
BROMOMETHANE	mg/kg	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500
CFC-11	mg/kg	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200
CHLOROBENZENE	mg/kg	<0.00500	<0.00500
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500
CHLOROETHANE	mg/kg	<0.0100	<0.0100

Table E.16.Attachment-1
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92
CHLOROFORM	mg/kg	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	<0.0100	<0.00500
ETHANOL	mg/kg	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	<0.00500	<0.00500
Iodomethane	mg/kg	<0.0200	<0.0200
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500
NAPHTHALENE	mg/kg	<0.300	<0.300
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500
VINYL ACETATE	mg/kg	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500

Table E.16.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92	HMW-17 15 05/12/92	HMW-17 20 05/12/92
Metals					
ARSENIC	mg/kg	0.78	<0.430	1.4	2.70 [2.00]
BARIUM	mg/kg	<98.0	<110	77	400 [120]
CADMIUM	mg/kg	<2.50	<2.70	<0.920	<0.530 [<0.510]
LEAD	mg/kg	<25.0	<27.0	<9.20	7.10 [5.60]
MERCURY	mg/kg	<0.100	<0.100	<0.100	<0.0800 [<0.100]
SELENIUM	mg/kg	<0.520	<0.430	<0.450	<0.530 [<0.460]
SILVER	mg/kg	<4.90	<5.50	<1.80	<1.10 [<1.00]
Parameters					
TPH	mg/kg	<14.0	<14.0	<13.0	<12.0 [<11.0]
PCBs					
Aroclor 1221	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1232	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1242	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1254	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1260	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor-1016	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor-1248	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
Pesticides/Herbicide					
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
4,4-DDD	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
4,4-DDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
4,4-DDT	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ALDRIN	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
alpha-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
beta-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
CAMPHECHLOR	mg/kg	<0.0670	<0.0670	<0.0670	<0.0670 [<0.0670]
CHLORDANE	mg/kg	<0.0340	<0.0340	<0.0340	<0.0340 [<0.0340]
D-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
DIELDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
Endosulfan I	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
Endosulfan II	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDOSULFAN SULFATE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDRIN	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDRIN ALDEHYDE	mg/kg	<0.00670	<0.00670	<0.00670	<0.00670 [<0.00670]
G-BHC	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
HEPTACHLOR	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
HEPTACHLOR EPOXIDE	mg/kg	<0.00340	<0.00340	<0.00340	<0.00340 [<0.00340]
SVOCs					
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]

Table E.16.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92	HMW-17 15 05/12/92	HMW-17 20 05/12/92
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00 [<2.00]
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
2-CHLOROPHENOL	mg/kg	<0.000300	<0.000300	<0.000300	<0.000300 [<0.000300]
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.000330	<0.000330	<0.000330	<0.000330 [<0.000330]
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700 [<0.700]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700 [<0.700]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00 [<2.00]
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
ACENAPHTHYLENE	mg/kg	<0.000300	<0.000300	<0.000300	<0.000300 [<0.000300]
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70 [<1.70]
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00 [<2.00]
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]

Table E.16.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92	HMW-17 15 05/12/92	HMW-17 20 05/12/92
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330 [<0.330]
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00 [<2.00]
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
TPHs					
PETROLEUM HYDROCARBONS	mg/kg	<14.0	<14.0	<13.0	<12.0 [<11.0]
VOCs					
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
ACETONE	mg/kg	0.37	<0.100	<0.100	<0.100 [<0.100]
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200 [<0.200]
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100 [<0.100]
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
DICHLOROMETHANE	mg/kg	<0.0100	<0.00500	<0.00500	<0.00500 [<0.00500]
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00 [<1.00]
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]

Table E.16.Attachment-2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-17 5 05/12/92	HMW-17 10 05/12/92	HMW-17 15 05/12/92	HMW-17 20 05/12/92
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300 [<0.300]
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]

Table E.16.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-14 12/06/06	HMW-14 03/27/08	HMW-14 08/06/08	HMW-17 12/06/06
Explosives					
2,4,6-TRINITROTOLUENE	mg/L	NA	<0.000500	NA	NA
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500	NA	NA
2-NITROTOLUENE	mg/L	NA	<0.000500	NA	NA
3-NITROTOLUENE	mg/L	NA	<0.000500	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500	NA	NA
4-NITROTOLUENE	mg/L	NA	<0.000500	NA	NA
RDX	mg/L	NA	<0.000500	NA	NA
TETRYL	mg/L	NA	<0.000500	NA	NA
Metals					
ANTIMONY	mg/L	NA	<0.0200	<0.0200	NA
ARSENIC	mg/L	NA	<0.00500	<0.0100	NA
BARIUM	mg/L	NA	0.011	0.012	NA
BERYLLIUM	mg/L	NA	<0.00200	<0.00200	NA
CADMIUM	mg/L	<0.00100	<0.00100	<0.00200	0.002
Chromium	mg/L	<0.00500	0.024	0.012	0.015
COBALT	mg/L	NA	<0.00200	<0.00200	NA
COPPER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
LEAD	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
MERCURY	mg/L	NA	<0.000200	<0.000200	NA
NICKEL	mg/L	NA	<0.00500	<0.00500	NA
SELENIUM	mg/L	NA	0.21	0.233	NA
SILVER	mg/L	<0.00200	<0.00500	<0.00500	<0.00200
SODIUM	mg/L	12,200	NA	NA	1,110
THALLIUM	mg/L	NA	<0.0200	<0.0500	NA
TIN	mg/L	NA	<0.0250	<0.100	NA
VANADIUM (FUME OR DUST)	mg/L	NA	<0.00500	<0.00500	NA
ZINC	mg/L	<0.00500	<0.00700	<0.00500	<0.00500
Metals-Dissolved					
Cadmium, Dissolved	mg/L	<0.00100	NA	NA	0.002
Chromium, Dissolved	mg/L	<0.00500	NA	NA	0.015
Copper, Dissolved	mg/L	<0.0125	NA	NA	<0.0125
Lead, Dissolved	mg/L	<0.00500	NA	NA	<0.00500
Silver, Dissolved	mg/L	<0.00200	NA	NA	<0.00200
Sodium, Dissolved	mg/L	13,400	NA	NA	1,650
Zinc, Dissolved	mg/L	<0.00500	NA	NA	<0.00500
Parameters					
ALKALINITY	mg/L	200	238	230	106
Alkalinity, Bicarbonate	mg/L	200	186	222	102
Alkalinity, Carbonate	mg/L	<1.00	52	8	4
Ammonia	mg/L	<1.00	NA	NA	<1.00
Bromide	mg/L	6.51	NA	NA	<1.00
Chloride (CL)	mg/L	9,770	8,670	8,750	88.2
CONDUCTIVITY	mS/cm	42.6	37.2	39.2	3.9

Table E.16.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-14 12/06/06	HMW-14 03/27/08	HMW-14 08/06/08	HMW-17 12/06/06
CONDUCTIVITY	umhos/cm	41,000	38,000	36,200	4,550
FLUORIDE	mg/L	5.13	5.11	<0.200	5.34
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	223	NA	NA	8.13
Nitrate + Nitrite	mg/L	NA	166	3,020	NA
Nitrite	mg/L	<0.100	NA	NA	<0.500
pH	pH Units	8.15	8.61	8.4	8.53
Phosphorus	mg/L	<0.0500	NA	NA	<0.0500
Sulfate	mg/L	16,400	13,900	14,500	2,950
Temperature	deg c	17	20.1	23.1	18.2
Total Dissolved Solids	mg/L	39,900	35,400	37,800	4,580
TOTAL ORGANIC CARBON	mg/L	NA	4.71	NA	NA
SVOCs					
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	NA	<0.000500	NA	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	<0.00500	NA	NA	<0.00500
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500

Table E.16.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-14 12/06/06	HMW-14 03/27/08	HMW-14 08/06/08	HMW-17 12/06/06
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
3-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500

Table E.16.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-14 12/06/06	HMW-14 03/27/08	HMW-14 08/06/08	HMW-17 12/06/06
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	<0.00500	<0.000500	<0.00500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	NA	<0.000500	NA	NA
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
TPHs					
DRO	mg/L	<5.00	<5.00	<5.00	<5.00
GRO	mg/L	<0.100	<0.100	<0.100	<0.100
VOCs					
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	0.00101	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	<0.00500	NA	NA	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100

Table E.16.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-14 12/06/06	HMW-14 03/27/08	HMW-14 08/06/08	HMW-17 12/06/06
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	NA	NA	<0.00500
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	NA	<0.000500	NA	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	NA	NA	<0.00500
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100

Table E.16.Attachment-3
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 149
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-14 12/06/06	HMW-14 03/27/08	HMW-14 08/06/08	HMW-17 12/06/06
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	0.00176	0.00204	0.00166	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100

Notes for E.17.Attachments 1-3
Risk Assessment Datasets
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
NA =	Not available
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound
TPH =	Total Petroleum Hydrocarbons

Table E.17.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
Metals										
ARSENIC	mg/kg	0.540	1.50	1.10	1.50	1.30	<0.470	<2.00	<2.00	<2.00
BARIUM	mg/kg	<85.0	<92.0	<110	<92.0	<98.0	<95.0	75.2	70.6	63.1
CADMIUM	mg/kg	<2.10	<2.30	<2.60	<2.30	<2.50	<2.40	<0.100	<0.100	<0.100
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	8.80	9.06	7.21
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	<5.00	<5.00	<0.400
LEAD	mg/kg	58.0	<23.0	<26.0	<23.0	<25.0	<24.0	16.3	17.3	13.3
MERCURY	mg/kg	0.300	0.110	<0.0900	0.110	<0.0800	<0.0900	<0.0400	<0.0400	<0.0400
SELENIUM	mg/kg	<0.520	<0.530	<0.480	<0.530	<0.460	<0.470	<1.00	<1.00	<1.00
SILVER	mg/kg	7.10	7.60	<5.30	7.60	<4.90	6.10	<0.0500	<0.0500	<0.0500
Other										
FOC	%	NA	NA	NA	NA	NA	NA	2.49	3.00	2.51
Parameters										
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	15.4	1.26	<1.00
SVOCs										
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	<0.0100	<0.0100	<0.0100
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.330	NA	<0.330	<0.330	<0.330	<0.330	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.660	<0.700	<0.700	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.660	<0.700	<0.700	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.330	NA	<0.330	<0.330	<0.330	<0.330	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA

Table E.17.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
VOCs										
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.500
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0500	<0.0500	<0.0500

Table E.17.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.200
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.200
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100

Table E.17.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA

Table E.17.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		150BG1	150S1	150S2	150S2	150S3	150S4	150S5	150S6	HLSF-SB-007	HLSF-SB-008	HLSF-SB-009
Sample Depth(ft):		3	1	1	2	1	2	3	1	0.5 - 1	0.5 - 1	0.5 - 1
Date Collected:	Units	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	10/17/06	10/17/06	10/18/06
Metals												
ARSENIC	mg/kg	1.90	0.540	1.50	1.10	1.50	1.30	1.00 [0.910]	<0.470	<2.00	<2.00	<2.00
BARIUM	mg/kg	170	<85.0	<92.0	<110	<92.0	<98.0	<100 [<100]	<95.0	75.2	70.6	63.1
CADMIUM	mg/kg	<2.50	<2.10	<2.30	<2.60	<2.30	<2.50	<2.50 [<2.50]	<2.40	<0.100	<0.100	<0.100
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	8.80	9.06	7.21
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	<5.00	<0.400
LEAD	mg/kg	<25.0	58.0	<23.0	<26.0	<23.0	<25.0	<25.0 [<25.0]	<24.0	16.3	17.3	13.3
MERCURY	mg/kg	<0.0800	0.300	0.110	<0.0900	0.110	<0.0800	0.120 [0.0900]	<0.0900	<0.0400	<0.0400	<0.0400
SELENIUM	mg/kg	<0.480	<0.520	<0.530	<0.480	<0.530	<0.460	<0.480 [<0.500]	<0.470	<1.00	<1.00	<1.00
SILVER	mg/kg	<5.10	7.10	7.60	<5.30	7.60	<4.90	<5.10 [<5.10]	6.10	<0.0500	<0.0500	<0.0500
Other												
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	2.49	3.00	2.51
Parameters												
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	15.4	1.26	<1.00
SVOCs												
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0100	<0.0100	<0.0100
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.330	<0.330	NA	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.660	<0.700	<0.700 [<0.700]	<0.700	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.660	<0.700	<0.700 [<0.700]	<0.700	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.330	<0.330	NA	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.70	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA

Table E.17.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150BG1 3 02/16/92	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S5 3 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
VOCs												
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100

Table E.17.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150BG1 3 02/16/92	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S5 3 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100

Table E.17.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150BG1 3 02/16/92	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S5 3 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-009 0.5 - 1 10/18/06
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500	<0.00500	NA	NA	NA

Table E.17.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		150BG1	150S1	150S2	150S2	150S3	150S4	150S5	150S6	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-008	HLSF-SB-008	HLSF-SB-008
Sample Depth(ft):		3	1	1	2	1	2	3	1	0.5 - 1	10 - 11	20 - 21	30 - 31	40 - 41	49 - 50	0.5 - 1	10 - 11	20 - 21
Date Collected:	Units	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06
Metals																		
ARSENIC	mg/kg	1.90	0.540	1.50	1.10	1.50	1.30	1.00 [0.910]	<0.470	<2.00	<2.00	<2.00	2.93	<2.00	3.19	<2.00	<2.00	<2.00
BARIUM	mg/kg	170	<85.0	<92.0	<110	<92.0	<98.0	<100 [<100]	<95.0	75.2	31.9	75.5	14.8	53.3	17.3	70.6	32.9	82.1
CADMIUM	mg/kg	<2.50	<2.10	<2.30	<2.60	<2.30	<2.50	<2.50 [<2.50]	<2.40	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	8.80	2.99	7.57	8.67	16.9	12.0	9.06	3.28	6.92
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
LEAD	mg/kg	<25.0	58.0	<23.0	<26.0	<23.0	<25.0	<25.0 [<25.0]	<24.0	16.3	2.98	11.9	13.5	37.1	30.5	17.3	3.57	10.8
MERCURY	mg/kg	<0.0800	0.300	0.110	<0.0900	0.110	<0.0800	0.120 [0.0900]	<0.0900	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400
SELENIUM	mg/kg	<0.480	<0.520	<0.530	<0.480	<0.530	<0.460	<0.480 [<0.500]	<0.470	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	<5.10	7.10	7.60	<5.30	7.60	<4.90	<5.10 [<5.10]	6.10	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Other																		
FOC	%	NA	NA	NA	NA	NA	NA	NA	NA	2.49	5.30	5.08	4.85	6.06	3.26	3.00	5.27	5.60
Parameters																		
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	15.4	1.56	1.22	1.23	1.94	3.82	1.26	0.579	1.90
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.330	<0.330	NA	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.660	<0.700	<0.700 [<0.700]	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.660	<0.700	<0.700 [<0.700]	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.330	<0.330	NA	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.17.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		150BG1	150S1	150S2	150S2	150S3	150S4	150S5	150S6	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-007	HLSF-SB-008	HLSF-SB-008	HLSF-SB-008
Sample Depth(ft):		3	1	1	2	1	2	3	1	0.5 - 1	10 - 11	20 - 21	30 - 31	40 - 41	49 - 50	0.5 - 1	10 - 11	20 - 21
Date Collected:	Units	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	02/16/92	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06	10/17/06
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<1.70	<2.00	<2.00 [<2.00]	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500

Table E.17.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	150BG1 3 02/16/92	150S1 1 02/16/92	150S2 1 02/16/92	150S2 2 02/16/92	150S3 1 02/16/92	150S4 2 02/16/92	150S5 3 02/16/92	150S6 1 02/16/92	HLSF-SB-007 0.5 - 1 10/17/06	HLSF-SB-007 10 - 11 10/17/06	HLSF-SB-007 20 - 21 10/17/06	HLSF-SB-007 30 - 31 10/17/06	HLSF-SB-007 40 - 41 10/17/06	HLSF-SB-007 49 - 50 10/17/06	HLSF-SB-008 0.5 - 1 10/17/06	HLSF-SB-008 10 - 11 10/17/06	HLSF-SB-008 20 - 21 10/17/06
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.330	<0.300	<0.300 [<0.300]	<0.300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.17.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-008 30 - 31 10/17/06	HLSF-SB-008 40 - 41 10/18/06	HLSF-SB-008 49 - 50 10/18/06	HLSF-SB-009 0.5 - 1 10/18/06	HLSF-SB-009 10 - 11 10/18/06	HLSF-SB-009 20 - 21 10/18/06	HLSF-SB-009 30 - 31 10/18/06	HLSF-SB-009 40 - 42 10/18/06	HLSF-SB-009 49 - 50 10/18/06
Metals										
ARSENIC	mg/kg	<2.00	4.46	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00
BARIUM	mg/kg	15.8	34.4	12.5	63.1	28.8	84.5	29.7	11.3 [15.1]	175
CADMIUM	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100
Chromium	mg/kg	5.91	15.6	7.97	7.21	2.36	5.08	6.91	4.60 [4.21]	7.18
Hexavalent Chromium	mg/kg	<5.00	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400 [<0.400]	<0.400
LEAD	mg/kg	8.01	35.9	15.9	13.3	2.15	8.42	16.1	7.44 [7.71]	18.5
MERCURY	mg/kg	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400 [<0.0400]	<0.0400
SELENIUM	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00
SILVER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
Other										
FOC	%	3.84	2.21	2.30	2.51	5.63	5.25	4.59	1.49 [2.39]	3.36
Parameters										
Nitrate + Nitrite	mg/kg	2.16	4.77	3.20	<1.00	<0.500	8.79	8.97	3.89 [6.47]	4.66
SVOCs										
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.17.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-008 30 - 31 10/17/06	HLSF-SB-008 40 - 41 10/18/06	HLSF-SB-008 49 - 50 10/18/06	HLSF-SB-009 0.5 - 1 10/18/06	HLSF-SB-009 10 - 11 10/18/06	HLSF-SB-009 20 - 21 10/18/06	HLSF-SB-009 30 - 31 10/18/06	HLSF-SB-009 40 - 42 10/18/06	HLSF-SB-009 49 - 50 10/18/06
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 [<0.500]	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500

Table E.17.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 150
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HLSF-SB-008 30 - 31 10/17/06	HLSF-SB-008 40 - 41 10/18/06	HLSF-SB-008 49 - 50 10/18/06	HLSF-SB-009 0.5 - 1 10/18/06	HLSF-SB-009 10 - 11 10/18/06	HLSF-SB-009 20 - 21 10/18/06	HLSF-SB-009 30 - 31 10/18/06	HLSF-SB-009 40 - 42 10/18/06	HLSF-SB-009 49 - 50 10/18/06
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes for E.18.Attachments 1-3
Risk Assessment Datasets
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

%	=	Percentage
<	=	Result is non-detect
[ ]	=	Indicates field duplicate result
deg c	=	Degrees Celsius
J	=	Laboratory qualifier, indicates estimated result
ft	=	Foot
mg/kg	=	Milligrams per kilogram
mg/L	=	Milligrams per liter
umhos/cm	=	micromhos per centimeter
mS/cm	=	microSiemens per centimeter
NA	=	Not available
PCB	=	Polychlorinated biphenyl
SVOC	=	Semi-volatile Organic Compound
VOC	=	Volatile Organic Compound

Table E.18.Attachment 1
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92
Metals					
ARSENIC	mg/kg	0.94	<0.460	<0.500	<0.480
BARIUM	mg/kg	<110	<92.0	<93.0	<93.0
CADMIUM	mg/kg	<2.70	<2.30	<2.30	<2.30
LEAD	mg/kg	<27.0	<23.0	<23.0	<23.0
MERCURY	mg/kg	<0.100	<0.0700	<0.100	<0.100
SELENIUM	mg/kg	<0.440	<0.460	<0.500	<0.480
SILVER	mg/kg	<5.40	<4.60	<4.60	<4.60
Parameters					
TPH	mg/kg	NA	NA	<13.0	<13.0
PCBs					
Aroclor 1221	mg/kg	NA	NA	<0.0340	<0.0340
Aroclor 1232	mg/kg	NA	NA	<0.0340	<0.0340
Aroclor 1242	mg/kg	NA	NA	<0.0340	<0.0340
Aroclor 1254	mg/kg	NA	NA	<0.0340	<0.0340
Aroclor 1260	mg/kg	NA	NA	<0.0340	<0.0340
Aroclor-1016	mg/kg	NA	NA	<0.0340	<0.0340
Aroclor-1248	mg/kg	NA	NA	<0.0340	<0.0340
Pesticides/Herbicide					
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	<0.0340	<0.0340
4,4-DDD	mg/kg	NA	NA	<0.00670	<0.00670
4,4-DDE	mg/kg	NA	NA	<0.00670	<0.00670
4,4-DDT	mg/kg	NA	NA	<0.00670	<0.00670
ALDRIN	mg/kg	NA	NA	<0.00340	<0.00340
alpha-BHC	mg/kg	NA	NA	<0.00340	<0.00340
beta-BHC	mg/kg	NA	NA	<0.00340	<0.00340
CAMPHECHLOR	mg/kg	NA	NA	<0.0670	<0.0670
CHLORDANE	mg/kg	NA	NA	<0.0340	<0.0340
D-BHC	mg/kg	NA	NA	<0.00340	<0.00340
DIELDRIN	mg/kg	NA	NA	<0.00670	<0.00670
Endosulfan I	mg/kg	NA	NA	<0.00340	<0.00340
Endosulfan II	mg/kg	NA	NA	<0.00670	<0.00670
ENDOSULFAN SULFATE	mg/kg	NA	NA	<0.00670	<0.00670
ENDRIN	mg/kg	NA	NA	<0.00670	<0.00670
ENDRIN ALDEHYDE	mg/kg	NA	NA	<0.00670	<0.00670
G-BHC	mg/kg	NA	NA	<0.00340	<0.00340
HEPTACHLOR	mg/kg	NA	NA	<0.00340	<0.00340
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	<0.00340	<0.00340
SVOCs					
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<0.000300	<0.300
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<0.000330	<2.00
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	<0.000300	<0.300

Table E.18.Attachment 1
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300	<0.300
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300
TPHs					
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	<13.0	<13.0
VOCs					
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100
ACETONE	mg/kg	<0.100	1.2	<0.100	3.9
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100

Table E.18.Attachment 1
Soil Risk Assessment Dataset
0-10 foot Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	<0.0500 B	<0.0500 B	<0.00500	<0.00500
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500

Table E.18.Attachment 2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	151B1 15 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92	152B1 15 05/13/92
Metals							
ARSENIC	mg/kg	0.94	<0.460	<0.540 [1.20]	<0.500	<0.480	0.800 [<0.510]
BARIUM	mg/kg	<110	<92.0	<100 [97.0]	<93.0	<93.0	99.0 [<90.0]
CADMIUM	mg/kg	<2.70	<2.30	<2.60 [<0.910]	<2.30	<2.30	<1.00 [<2.30]
LEAD	mg/kg	<27.0	<23.0	<26.0 [<9.10]	<23.0	<23.0	<10.0 [<23.0]
MERCURY	mg/kg	<0.100	<0.0700	<0.100 [<0.100]	<0.100	<0.100	<0.100 [<0.100]
SELENIUM	mg/kg	<0.440	<0.460	<0.540 [<0.470]	<0.500	<0.480	<0.500 [<0.510]
SILVER	mg/kg	<5.40	<4.60	<5.20 [<1.80]	<4.60	<4.60	<2.00 [<4.50]
Parameters							
TPH	mg/kg	NA	NA	NA	<13.0	<13.0	<13.0 [<13.0]
PCBs							
Aroclor 1221	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1232	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1242	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1254	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor 1260	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor-1016	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Aroclor-1248	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
Pesticides/Herbicide							
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
4,4-DDD	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
4,4-DDE	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
4,4-DDT	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
ALDRIN	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
alpha-BHC	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
beta-BHC	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
CAMPHECHLOR	mg/kg	NA	NA	NA	<0.0670	<0.0670	<0.0670 [<0.0670]
CHLORDANE	mg/kg	NA	NA	NA	<0.0340	<0.0340	<0.0340 [<0.0340]
D-BHC	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
DIELDRIN	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
Endosulfan I	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
Endosulfan II	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDOSULFAN SULFATE	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDRIN	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
ENDRIN ALDEHYDE	mg/kg	NA	NA	NA	<0.00670	<0.00670	<0.00670 [<0.00670]
G-BHC	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
HEPTACHLOR	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
HEPTACHLOR EPOXIDE	mg/kg	NA	NA	NA	<0.00340	<0.00340	<0.00340 [<0.00340]
SVOCs							
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]

Table E.18.Attachment 2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	151B1 15 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92	152B1 15 05/13/92
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00 [<2.00]
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.000300	<0.300	<0.300 [<0.300]
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<0.000330	<2.00	<2.00 [<2.00]
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700 [<0.700]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700 [<0.700]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500 [<0.0500]
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00 [<2.00]
Acenaphthene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.000300	<0.300	<0.300 [<0.300]
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
BENZIDINE	mg/kg	<1.70	<1.70	<1.70 [<1.70]	<1.70	<1.70	<1.70 [<1.70]
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00 [<2.00]
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
FLUORENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]

Table E.18.Attachment 2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	151B1 15 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92	152B1 15 05/13/92
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330 [<0.330]	<0.330	<0.330	<0.330 [<0.330]
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00 [<2.00]
PHENANTHRENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
PHENOL	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
PYRENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
TPHs							
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	<13.0	<13.0	<13.0 [<13.0]
VOCs							
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200 [<0.0200]
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200 [<0.0200]
2-butanone	mg/kg	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100 [<0.100]
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100 [<0.0100]
ACETONE	mg/kg	<0.100	1.2	<0.100 [<0.100]	<0.100	3.9	<0.100 [<0.100]
ACROLEIN	mg/kg	<0.200	<0.200	<0.200 [<0.200]	<0.200	<0.200	<0.200 [<0.200]
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100 [<0.100]
BENZENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100 [<0.0100]
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200 [<0.0200]
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100 [<0.0100]
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100 [<0.0100]
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200 [<0.0200]
DICHLOROMETHANE	mg/kg	<0.0500 B	<0.0500 B	<0.0500 B [<0.0500 B]	<0.00500	<0.00500	<0.00500 [<0.00500]
ETHANOL	mg/kg	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00 [<1.00]
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200 [<0.0200]

Table E.18.Attachment 2
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	151B1 5 05/13/92	151B1 10 05/13/92	151B1 15 05/13/92	152B1 5 05/13/92	152B1 10 05/13/92	152B1 15 05/13/92
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200 [<0.0200]
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500 [<0.0500]
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
NAPHTHALENE	mg/kg	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300 [<0.300]
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100 [<0.0100]
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100 [<0.0100]
Xylenes	mg/kg	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500 [<0.00500]

Table E.18.Attachment 3
Saturated Vadoze Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-12 12/05/06
Metals		
CADMIUM	mg/L	0.001
Chromium	mg/L	0.181
COPPER	mg/L	<0.00500
LEAD	mg/L	<0.00500
SILVER	mg/L	<0.00200
SODIUM	mg/L	14,800
ZINC	mg/L	<0.00500
Metals-Dissolved		
Cadmium, Dissolved	mg/L	<0.00100
Chromium, Dissolved	mg/L	0.174
Copper, Dissolved	mg/L	<0.0125
Lead, Dissolved	mg/L	<0.00500
Silver, Dissolved	mg/L	<0.00200
Sodium, Dissolved	mg/L	13,200
Zinc, Dissolved	mg/L	<0.00500
Parameters		
ALKALINITY	mg/L	192
Alkalinity, Bicarbonate	mg/L	192
Alkalinity, Carbonate	mg/L	<1.00
Ammonia	mg/L	<1.00
Bromide	mg/L	5.9
Chloride (CL)	mg/L	9,350
CONDUCTIVITY	mS/cm	43.3
CONDUCTIVITY	umhos/cm	42,000
FLUORIDE	mg/L	7.31
Hydroxide Alkalinity	mg/L	<1.00
Nitrate	mg/L	126
Nitrite	mg/L	<0.100
pH	pH Units	7.62
Phosphorus	mg/L	<0.0500
Sulfate	mg/L	16,300
Temperature	deg c	16.7
Total Dissolved Solids	mg/L	43,000
SVOCs		
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100
1,4-DICHLOROBENZENE	mg/L	<0.00100
1-Chloronaphthalene	mg/L	<0.00500
1-Methylnaphthalene	mg/L	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500
2-Butoxy Ethanol	mg/L	<0.00500
2-CHLORONAPHTHALENE	mg/L	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500
2-Methyl pyridine	mg/L	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500
2-Methylphenol	mg/L	<0.00500
2-Naphthylamine	mg/L	<0.00500
2-NITROANILINE	mg/L	<0.00500

Table E.18.Attachment 3
Saturated Vadoze Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-12 12/05/06
2-NITROPHENOL	mg/L	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500
3-NITROANILINE	mg/L	<0.00500
4-Aminobiphenyl	mg/L	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500
4-NITROPHENOL	mg/L	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500
Acenaphthene	mg/L	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500
ACETOPHENONE	mg/L	<0.00500
Aniline	mg/L	<0.00500
ANTHRACENE	mg/L	<0.00500
BENZIDINE	mg/L	<0.0250
Benzo(a)anthracene	mg/L	<0.00500
Benzo(a)pyrene	mg/L	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500
BENZOIC ACID	mg/L	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500
bis(2-Chloroethyl) ether	mg/L	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500
CHLOROPHENOLS	mg/L	<0.0100
CYMENE	mg/L	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500
DIBENZOFURAN	mg/L	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500
DIPHENYLAMINE	mg/L	<0.00500
Diphenylhydrazine	mg/L	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500
FLUORANTHENE	mg/L	<0.00500
FLUORENE	mg/L	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500
m,p-Cresol	mg/L	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500
NITROBENZENE	mg/L	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500
P-CHLOROANILINE	mg/L	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100

Table E.18.Attachment 3
Saturated Vadoze Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-12 12/05/06
PHENACETIN	mg/L	<0.00500
PHENANTHRENE	mg/L	<0.00500
PHENOL	mg/L	<0.00500
P-NITROANILINE	mg/L	<0.00500
PROPYZAMIDE	mg/L	<0.00500
PYRENE	mg/L	<0.00500
PYRIDINE	mg/L	<0.00500
TPHs		
DRO	mg/L	<5.00
GRO	mg/L	<0.100
VOCs		
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100
1,1-Dichloropropene	mg/L	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500
1,2-Dibromoethane	mg/L	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100
1,2-Dichloropropane	mg/L	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100
1,4-Dioxane	mg/L	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100
2-butanone	mg/L	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100
ACETONE	mg/L	<0.0100
ACRYLONITRILE	mg/L	<0.00100
BENZENE	mg/L	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500
BROMOBENZENE	mg/L	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100
BROMOMETHANE	mg/L	<0.00500
CARBON DISULFIDE	mg/L	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100
CFC-11	mg/L	<0.00100
CFC-12	mg/L	<0.00100
CHLOROBENZENE	mg/L	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100
CHLOROETHANE	mg/L	<0.00100
CHLOROFORM	mg/L	<0.00100
CHLOROMETHANE	mg/L	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100
DIBROMOMETHANE	mg/L	<0.00100
DICHLOROMETHANE	mg/L	<0.00500
ETHYLBENZENE	mg/L	<0.00100
Iodomethane	mg/L	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500
Isopropylbenzene	mg/L	<0.00100
m,p-Xylene	mg/L	<0.00100
METHYL N-BUTYL KETONE	mg/L	<0.00500
METHYLBENZENE	mg/L	<0.00100
MTBE	mg/L	<0.00100
NAPHTHALENE	mg/L	<0.00500
n-Butylbenzene	mg/L	<0.00100
n-Propylbenzene	mg/L	<0.00100

Table E.18.Attachment 3
Saturated Vadoze Zone Soil Water Risk Assessment Dataset
Solid Waste Managment Unit 151-152
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Date Collected:	Units	HMW-12 12/05/06
o-Xylene	mg/L	<0.00100
sec-Butylbenzene	mg/L	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500
tert-Butylbenzene	mg/L	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100
TRIBOMOMETHANE	mg/L	0.00102
TRICHLOROETHYLENE	mg/L	<0.00100
Vinyl Chloride	mg/L	<0.00100

Notes for E.19.Attachments 1-4
Risk Assessment Datasets
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
mS/cm =	microSiemens per centimeter
umhos/cm =	micromhos per centimeter
NA =	Not available
PCB =	Polychlorinated biphenyls
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound
TPH =	Total Petroleum Hydrocarbons

Table E.19.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	154BG 2 04/06/92
Metals		
ARSENIC	mg/kg	<0.550
BARIUM	mg/kg	<99.0
CADMIUM	mg/kg	<2.50
LEAD	mg/kg	<25.0
MERCURY	mg/kg	<0.0800
SELENIUM	mg/kg	<0.550
SILVER	mg/kg	<5.00
Parameters		
TPH	mg/kg	<13.0
SVOCs		
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300
1,2-BENZPHENANTHRACENE	mg/kg	<0.300
1,4-DICHLOROBENZENE	mg/kg	<0.300
2,4,6-Trichlorophenol	mg/kg	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.300
2,4-DINITROPHENOL	mg/kg	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.300
2,6-DINITROTOLUENE	mg/kg	<0.300
2-CHLORONAPHTHALENE	mg/kg	<0.300
2-CHLOROPHENOL	mg/kg	<0.330
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00
2-NITROPHENOL	mg/kg	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500
4-NITROPHENOL	mg/kg	<2.00
Acenaphthene	mg/kg	<0.300
ACENAPHTHYLENE	mg/kg	<0.330
ANTHRACENE	mg/kg	<0.300
BENZIDINE	mg/kg	<1.70
Benzo(a)anthracene	mg/kg	<0.300
Benzo(a)pyrene	mg/kg	<0.300
Benzo(b)fluoranthene	mg/kg	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.300
Benzo(k)fluoranthene	mg/kg	<0.300
BENZOIC ACID	mg/kg	<2.00
BENZYL BUTYL PHTHALATE	mg/kg	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300
Dibenz(a,h)anthracene	mg/kg	<0.300
DIETHYL PHTHALATE	mg/kg	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.300
Di-n-butyl phthalate	mg/kg	<0.300
Di-n-octyl phthalate	mg/kg	<0.300
FLUORANTHENE	mg/kg	<0.300
FLUORENE	mg/kg	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300
HEXACHLOROBENZENE	mg/kg	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300
HEXACHLOROETHANE	mg/kg	<0.300
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300
M-DICHLOROBENZENE	mg/kg	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330
NITROBENZENE	mg/kg	<0.300
n-Nitrosodi-n-propylamine	mg/kg	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	<0.300

Table E.19.Attachment 1
Soil Risk Assessment Dataset
0-2 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	154BG 2 04/06/92
PENTACHLOROPHENOL	mg/kg	<2.00
PHENANTHRENE	mg/kg	<0.300
PHENOL	mg/kg	<0.300
PYRENE	mg/kg	<0.300
TPHs		
PETROLEUM HYDROCARBONS	mg/kg	<13.0
VOCs		
1,1,1-Trichloroethane	mg/kg	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500
1,2,3-Trichloropropane	mg/kg	<0.0200
1,2-DICHLOROBENZENE	mg/kg	<0.300
1,2-DICHLOROETHANE	mg/kg	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500
1,4 Dichloro-2-butene	mg/kg	<0.0200
2-butanone	mg/kg	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100
ACETONE	mg/kg	<0.100
ACROLEIN	mg/kg	<0.200
ACRYLONITRILE	mg/kg	<0.100
BENZENE	mg/kg	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300
BROMOMETHANE	mg/kg	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500
CFC-11	mg/kg	<0.0100
CFC-12	mg/kg	<0.0200
CHLOROBENZENE	mg/kg	<0.00500
CHLORODIBROMOMETHANE	mg/kg	<0.00500
CHLOROETHANE	mg/kg	<0.0100
CHLOROFORM	mg/kg	<0.00500
CHLOROMETHANE	mg/kg	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200
DICHLOROMETHANE	mg/kg	<0.00500
ETHANOL	mg/kg	<1.00
ETHYL METHACRYLATE	mg/kg	<0.0200
ETHYLBENZENE	mg/kg	<0.00500
Iodomethane	mg/kg	<0.0200
METHYL N-BUTYL KETONE	mg/kg	<0.0500
METHYLBENZENE	mg/kg	<0.00500
NAPHTHALENE	mg/kg	<0.300
STYRENE (MONOMER)	mg/kg	<0.00500
TETRACHLOROETHENE	mg/kg	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500
VINYL ACETATE	mg/kg	<0.0100
Vinyl Chloride	mg/kg	<0.0100
Xylenes	mg/kg	<0.00500

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		154BG	CFW-02	CFW-02	CFW-03	CFW-03	DRW-01	DRW-02	DRW-03	DRW-04	DRW-05	DRW-06	HCF-01	HCF-02	HCF-02	HCF-02	HCF-02
Sample Depth(ft):		2	3 - 5	8 - 10	3 - 5	8 - 10	10	10	10	10	10	10	4 - 6	0 - 5	0 - 5	5 - 10	5 - 10
Date Collected:	Units	04/06/92	05/20/93	05/20/93	05/18/93	05/18/93	11/01/94	11/02/94	11/04/94	11/05/94	11/06/94	11/08/94	03/28/90	03/24/92	04/08/92	03/24/92	04/08/92
Metals																	
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,700	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	<0.500	<0.500	0.980	0.680	0.710	<0.500	NA	<12.0	NA	NA	NA
ARSENIC	mg/kg	<0.550	1.1	1.2	<0.570	0.063	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	<2.00	NA	NA	NA
BARIUM	mg/kg	<99.0	<98.0	<100	<93.0	<96.0	<100	<100	NA	NA	NA	<10.0	NA	44	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	NA	<1.00	NA	NA	NA
CADMIUM	mg/kg	<2.50	<2.50	<2.70	<2.30	<2.40	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	NA	<1.00	NA	NA	NA
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160,000	NA	NA	NA
Chromium	mg/kg	NA	<4.90	<5.20	<4.60	<7.30	<5.00	<5.00	<5.00	<5.00	<5.00	7	NA	<2.00	NA	NA	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	4.5	4.5	5	6	7	7	NA	<5.00	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,800	NA	NA	NA
LEAD	mg/kg	<25.0	<0.610	<0.640	<0.570	<0.610	14	23	30	24	20	26	NA	<22.0	NA	NA	NA
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,700	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	NA
MERCURY	mg/kg	<0.0800	<0.0290	<0.0310	<0.0280	<0.0280	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	5.8	9.3	6	7	8	10	NA	<8.00	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100	NA	NA	NA
SELENIUM	mg/kg	<0.550	<0.610	<0.640	<0.570	<0.610	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	<60.0	NA	NA	NA
SILVER	mg/kg	<5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	590	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	<60.0	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA
Total Cyanide	mg/kg	NA	<0.180	<0.200	<0.190	<0.170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	11	9.1	9	13	14	14	NA	27	NA	NA	NA
Parameters																	
% Solids	%	NA	75.9	70.9	19	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	1,800	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,100	<40.0	<40.0	<40.0
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	0.74	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	0.851	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0410	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.330	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0660	<0.0710	<0.0620	<0.0660	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	<0.150	NA	NA	NA
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		154BG	CFW-02	CFW-02	CFW-03	CFW-03	DRW-01	DRW-02	DRW-03	DRW-04	DRW-05	DRW-06	HCF-01	HCF-02	HCF-02	HCF-02	HCF-02
Sample Depth(ft):		2	3 - 5	8 - 10	3 - 5	8 - 10	10	10	10	10	10	10	4 - 6	0 - 5	0 - 5	5 - 10	5 - 10
Date Collected:	Units	04/06/92	05/20/93	05/20/93	05/18/93	05/18/93	11/01/94	11/02/94	11/04/94	11/05/94	11/06/94	11/08/94	03/28/90	03/24/92	04/08/92	03/24/92	04/08/92
Acenaphthene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.330	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0240	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	<0.900	<0.900	<0.800	<0.900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																	
>C10-C28	mg/kg	NA	<67.0	<71.0	<13.0	<13.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	2,600	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0530	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0170	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0530	NA	NA	NA
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0420	NA	NA	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0460	NA	NA	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0390	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0370	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0670	NA	NA	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	154BG 2 04/06/92	CFW-02 3 - 5 05/20/93	CFW-02 8 - 10 05/20/93	CFW-03 3 - 5 05/18/93	CFW-03 8 - 10 05/18/93	DRW-01 10 11/01/94	DRW-02 10 11/02/94	DRW-03 10 11/04/94	DRW-04 10 11/05/94	DRW-05 10 11/06/94	DRW-06 10 11/08/94	HCF-01 4 - 6 03/28/90	HCF-02 0 - 5 03/24/92	HCF-02 0 - 5 04/08/92	HCF-02 5 - 10 03/24/92	HCF-02 5 - 10 04/08/92
2-butanone	mg/kg	<0.100	<0.130	<0.140	<0.120	<0.130	<0.200	<0.200	<1.00	<1.00	<1.00	<1.00	NA	<0.150	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	<0.0670	NA	NA	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.130	<0.140	<0.120	<0.130	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	<0.190	NA	NA	NA
ACROLEIN	mg/kg	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0720	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.00700	<0.00700	<0.00600	<0.00700	NA	NA	NA	NA	NA	NA	NA	<0.0330	NA	NA	NA
BROMOMETHANE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0670	NA	NA	NA
CARBON DISULFIDE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	NA	NA	NA	NA	NA	NA	NA	<0.0220	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0170	NA	NA	NA
CFC-11	mg/kg	<0.0100	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0420	NA	NA	NA
CFC-12	mg/kg	<0.0200	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0340	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0390	NA	NA	NA
CHLOROETHANE	mg/kg	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0960	NA	NA	NA
CHLOROFORM	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0370	NA	NA	NA
CHLOROMETHANE	mg/kg	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0360	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0460	NA	NA	NA
DIBROMOMETHANE	mg/kg	<0.0200	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.0130	<0.0140	<0.0120	<0.0130	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0450	NA	NA	NA
ETHANOL	mg/kg	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0470	NA	NA	NA
Iodomethane	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	0.65	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0770	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0660	<0.0710	<0.0620	<0.0660	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	<0.120	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0580	NA	NA	NA
MTBE	mg/kg	NA	<0.00700	<0.00700	<0.00600	<0.00700	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	<0.400	<0.500	<0.400	<0.400	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	0.12	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0390	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	0.095	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0450	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0770	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0450	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0190	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	<0.00700	<0.00700	<0.00600	<0.00700	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0630	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.110	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	NA	NA	NA	NA	NA	NA	NA	<0.0670	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0130	<0.0140	<0.0120	<0.0130	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.100	NA	NA	NA
Xylenes	mg/kg	<0.00500	<0.00700	<0.00700	<0.00600	<0.00700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-03	HCF-03	HCF-E200	HCF-E200	HCF-NE100	HCF-NE100	HCF-NE200	HCF-NE200	HCF-S100	HCF-SW100	HCF-SW100	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-W100	HCF-W100
Sample Depth(ft):		0 - 5	5 - 10	0 - 5	5 - 10	0 - 5	5 - 10	0 - 5	5 - 10	7.5 - 9	0 - 5	5 - 10	0 - 5	0 - 5	5 - 10	5 - 10	0 - 5	5 - 10
Date Collected:	Units	04/08/92	04/08/92	06/01/92	06/01/92	06/02/92	06/02/92	05/20/92	05/20/92	01/23/92	03/23/92	03/23/92	04/29/92	05/03/93	04/29/92	05/03/93	03/03/92	03/03/92
Metals																		
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500	NA	<0.460	NA	NA
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<93.0	NA	71	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.30	NA	<0.620	NA	NA
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0100	NA	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7	NA	4.1	NA	NA
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0240	NA	<0.0210	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500	NA	<0.460	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.70	NA	<1.20	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																		
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	3,900	<40.0	11,000	<40.0	<40.0
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-03	HCF-03	HCF-E200	HCF-E200	HCF-NE100	HCF-NE100	HCF-NE200	HCF-NE200	HCF-S100	HCF-SW100	HCF-SW100	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-W100	HCF-W100
Sample Depth(ft):		0 - 5	5 - 10	0 - 5	5 - 10	0 - 5	5 - 10	0 - 5	5 - 10	7.5 - 9	0 - 5	5 - 10	0 - 5	0 - 5	5 - 10	5 - 10	0 - 5	5 - 10
Date Collected:	Units	04/08/92	04/08/92	06/01/92	06/01/92	06/02/92	06/02/92	05/20/92	05/20/92	01/23/92	03/23/92	03/23/92	04/29/92	05/03/93	04/29/92	05/03/93	03/03/92	03/03/92
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																		
>C10-C28	mg/kg	<40.0	<40.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.044	NA	<0.00500	NA	NA
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HCF-03 0 - 5 04/08/92	HCF-03 5 - 10 04/08/92	HCF-E200 0 - 5 06/01/92	HCF-E200 5 - 10 06/01/92	HCF-NE100 0 - 5 06/02/92	HCF-NE100 5 - 10 06/02/92	HCF-NE200 0 - 5 05/20/92	HCF-NE200 5 - 10 05/20/92	HCF-S100 7.5 - 9 01/23/92	HCF-SW100 0 - 5 03/23/92	HCF-SW100 5 - 10 03/23/92	HCF-SW300 0 - 5 04/29/92	HCF-SW300 0 - 5 05/03/93	HCF-SW300 5 - 10 04/29/92	HCF-SW300 5 - 10 05/03/93	HCF-W100 0 - 5 03/03/92	HCF-W100 5 - 10 03/03/92
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	<0.100	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	<0.100	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0093	NA	<0.00500	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	NA	<0.00500	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05	NA	<0.00500	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-10	HMW-13	N100	N100	N200	N200	SE-100	SW100	SW100	SW200	SW200	W100	WSW-300	WSW-300	WSW-300	WSW-300
Sample Depth(ft):		10	10	0 - 5	5 - 10	0 - 5	5 - 10	4.5 - 6	0 - 5	5 - 10	0 - 5	5 - 10	0 - 5	0 - 5	0 - 5	5 - 10	5 - 10
Date Collected:	Units	04/16/92	04/28/92	06/22/92	06/22/92	06/23/92	06/23/92	01/24/92	03/23/92	03/23/92	04/29/92	04/29/92	03/03/92	04/28/92	04/29/93	04/28/92	04/29/93
Metals																	
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	1.1	0.58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.610	NA	2.1
BARIUM	mg/kg	<93.0	<96.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<91.0	NA	<100
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<2.30	<2.40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.30	NA	<2.50
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.50	NA	<5.00
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	<23.0	<24.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.610	NA	1.2
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	<0.100	<0.0600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0240	NA	<0.0200
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.540	<0.510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.610	NA	<0.590
SILVER	mg/kg	<4.70	<4.80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.50	NA	<5.00
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																	
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	55	<10.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<13.0	<40.0	1,300
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500
4-NITROPHENOL	mg/kg	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	HMW-10 10 04/16/92	HMW-13 10 04/28/92	N100 0 - 5 06/22/92	N100 5 - 10 06/22/92	N200 0 - 5 06/23/92	N200 5 - 10 06/23/92	SE-100 4.5 - 6 01/24/92	SW100 0 - 5 03/23/92	SW100 5 - 10 03/23/92	SW200 0 - 5 04/29/92	SW200 5 - 10 04/29/92	W100 0 - 5 03/03/92	WSW-300 0 - 5 04/28/92	WSW-300 0 - 5 04/29/93	WSW-300 5 - 10 04/28/92	WSW-300 5 - 10 04/29/93
Acenaphthene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																	
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	55	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 2
Soil Risk Assessment Dataset
0-10 Foot Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-10	HMW-13	N100	N100	N200	N200	SE-100	SW100	SW100	SW200	SW200	W100	WSW-300	WSW-300	WSW-300	WSW-300
Sample Depth(ft):		10	10	0 - 5	5 - 10	0 - 5	5 - 10	4.5 - 6	0 - 5	5 - 10	0 - 5	5 - 10	0 - 5	0 - 5	0 - 5	5 - 10	5 - 10
Date Collected:	Units	04/16/92	04/28/92	06/22/92	06/22/92	06/23/92	06/23/92	01/24/92	03/23/92	03/23/92	04/29/92	04/29/92	03/03/92	04/28/92	04/29/93	04/28/92	04/29/93
2-butanone	mg/kg	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	<0.100
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	<0.100
ACROLEIN	mg/kg	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
BROMOMETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
CFC-11	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
CHLOROETHANE	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100
CHLOROFORM	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100
ETHANOL	mg/kg	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
Iodomethane	mg/kg	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500
METHYLBENZENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
VINYL ACETATE	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100
Xylenes	mg/kg	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3	142B3	142B3	154BG	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		17	19	21	23	27	31	19	23	25	29	35	39	2	29	30	31	32
Date Collected:	Units	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	04/06/92	05/03/93	05/03/93	05/03/93	05/03/93
Metals																		
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	4.2	2.3	3.5	5	3.6	1.7	1.8	1	1.6	1.9	2.4	1.7	<0.550	NA	0.5	NA	0.76
BARIUM	mg/kg	<97.0	23	30	51	49	35	41	55	110	25	50	39	<99.0	NA	<98.0	NA	<100
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<2.40	<0.530	<0.510	<0.510	<1.10	<0.520	<0.490	<0.550	<0.510	<0.540	<0.500	<0.460	<2.50	NA	<2.40	NA	<2.50
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.90	NA	<5.00
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0100
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	<24.0	14	9.4	11	8.8	5.4	9.9	7	<5.10	6	6.4	<4.60	<25.0	NA	<0.450	NA	0.87
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	<0.0800	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.0900	<0.100	<0.100	<0.0900	<0.0900	<0.0800	NA	<0.0200	NA	<0.0220
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.550	<0.450	<0.470	<0.490	<0.560	<0.490	<0.500	<0.520	<0.500	<0.520	<0.490	<0.530	<0.550	NA	<0.450	NA	<0.490
SILVER	mg/kg	<4.90	<1.10	<1.00	<1.00	<2.10	<1.00	<0.980	<1.10	<1.00	<1.10	<0.990	<0.930	<5.00	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																		
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	60	3,100	510	420	<10.0	<11.0	2,600	9,100	8,600	7,700	8,600	3,300	<13.0	NA	NA	NA	NA
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.300	<2.00	<0.300	<0.300	<2.00	<0.300	<0.300	<2.00	<2.00	<2.00	<2.00	<2.00	<0.330	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3	142B3	142B3	154BG	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		17	19	21	23	27	31	19	23	25	29	35	39	2	29	30	31	32
Date Collected:	Units	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	04/06/92	05/03/93	05/03/93	05/03/93	05/03/93
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0500	NA
4-NITROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.300	<2.00	<0.300	<0.300	<2.00	<0.300	<0.300	<2.00	<2.00	<2.00	<2.00	<2.00	<0.330	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	<0.300	<0.300	<0.300	1.7	<0.300	<0.300	1.8	<0.300	2.1	2.1	<0.300	<0.300	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3	142B3	142B3	154BG	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		17	19	21	23	27	31	19	23	25	29	35	39	2	29	30	31	32
Date Collected:	Units	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	04/06/92	05/03/93	05/03/93	05/03/93	05/03/93
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	3.3	0.73	0.63	7.9	<0.300	0.86	9.3	5.5	8.9	8.3	5.3	<0.300	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																		
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0	NA	<14.0
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	60	3,100	510	420	5,100	<11.0	2,600	9,100	8,600	7,700	8,600	3,300	<13.0	NA	NA	NA	NA
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	0.0068	0.35	0.015	0.018	0.14	<0.00500	0.052	0.097	0.81	0.06	0.18	0.023	<0.00500	<0.00500	NA	<0.00500	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
1,1-DICHLOROETHANE	mg/kg	<0.00500	0.0096	<0.00500	<0.00500	<0.00500	<0.00500	0.095	0.068	0.067	<0.00500	0.018	0.0069	<0.00500	<0.00500	NA	<0.00500	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	0.01	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	NA	<0.100	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		142B2	142B2	142B2	142B2	142B2	142B2	142B3	142B3	142B3	142B3	142B3	142B3	154BG	CFW-01	CFW-01	CFW-01	CFW-01
Sample Depth(ft):		17	19	21	23	27	31	19	23	25	29	35	39	2	29	30	31	32
Date Collected:	Units	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	06/10/92	04/06/92	05/03/93	05/03/93	05/03/93	05/03/93
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	0.12	1	<0.100	<0.100	<0.100	<0.100	0.64	1.1	6.1	<0.100	<0.100	2.3	<0.100	<0.100	NA	<0.100	NA
ACROLEIN	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	0.027	0.007	0.0072	0.011	<0.00500	<0.00500	0.15	0.58	0.044	0.11	0.041	<0.00500	<0.00500	NA	<0.00500	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA
BROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
CARBON DISULFIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
CARBON TETRACHLORIDE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA
CFC-12	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA
CHLOROFORM	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA
cis-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
DIBROMOMETHANE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.0250	<0.0250	<0.0130	<0.00500	<0.00500	<0.00500	<0.0100	NA	<0.0100	NA
ETHANOL	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.044	0.77	3.5	0.41	1.3	0.1	<0.00500	<0.00500	NA	<0.00500	NA
Iodomethane	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0500	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	0.0096	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.038	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	3.4	0.47	0.36	6.8	<0.300	0.73	9.3	6.2	9.2	8.6	5.3	<0.300	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
trans-1,3-Dichloropropene	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA
TRICHLOROETHYLENE	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0100	NA
Xylenes	mg/kg	0.0066	1.7	0.048	0.12	1.2	<0.00500	0.033	1.1	2.5	0.68	7	0.17	<0.00500	<0.00500	NA	<0.00500	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-03	CFW-03	CFW-03
Sample Depth(ft):		33	34	35	36	37	38	39	40	41	42	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	3 - 5	8 - 10	13 - 15
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/18/93	05/18/93	05/18/93
Metals																						
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.10	NA	NA	NA
ARSENIC	mg/kg	NA	<0.510	NA	<0.490	NA	<0.490	NA	<0.490	NA	<0.490	1.1	1.2	0.96	13	2.5	1.9	3.3	3.5	<0.570	0.063	<0.610
BARIUM	mg/kg	NA	<96.0	NA	<98.0	NA	<98.0	NA	<98.0	NA	71	<98.0	<100	<110	<99.0	61	43	<23.0	77	<93.0	<96.0	<95.0
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.590	NA	NA	NA
CADMIUM	mg/kg	NA	<2.40	NA	<2.40	NA	<2.40	NA	<2.40	NA	<2.40	<2.50	<2.70	<2.70	<2.40	<0.550	<0.570	<0.570	<0.590	<2.30	<2.40	<2.40
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	<4.80	NA	<4.90	NA	<4.90	NA	8	NA	7.7	<4.90	<5.20	<5.30	9.9	6.4	6.1	4.8	4.6	<4.60	<7.30	<4.80
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.90	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0130	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	<0.510	NA	<0.490	NA	<0.490	NA	3.7	NA	4.1	<0.610	<0.640	<0.660	3.5	4.4	4.4	5	4.2	<0.570	<0.610	<0.610
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	<0.0220	NA	<0.0230	NA	<0.0230	NA	<0.0230	NA	<0.0230	<0.0290	<0.0310	<0.0320	<0.0350	<0.0260	<0.0270	<0.0270	<0.0270	<0.0280	<0.0280	<0.0280
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	<0.510	NA	<0.490	NA	<0.490	NA	<0.490	NA	<0.490	<0.610	<0.640	<0.660	<0.620	<0.530	<0.570	<0.570	<0.600	<0.570	<0.610	<0.610
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.600	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.0	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.180	<0.200	0.42	0.2	<0.170	<0.190	0.53	<0.200	<0.190	<0.170	<0.190
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	NA	NA
Parameters																						
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75.9	70.9	69.9 [68.5]	73.9	87.1	80.7	81.3	77.3	19	24	25
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	91	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800	2,200	820
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																						
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9.00	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<4.00	NA	<2.00	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<4.00	NA	<2.00	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	49	11	42	13	35	0.99	<0.400	<0.400	<0.500
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-03	CFW-03	CFW-03
Sample Depth(ft):		33	34	35	36	37	38	39	40	41	42	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	3 - 5	8 - 10	13 - 15
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/18/93	05/18/93	05/18/93
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900	<0.800	<0.900	<0.900
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900	<0.800	<0.900	<0.900
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.500	NA	<0.0660	<0.0710	<0.0720 [<0.0730]	<0.0660	<0.0580	<0.0620	<0.0630	<0.0650	<0.0620	<0.0660	<0.0670
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	2.6	<2.00	<4.00	0.63	2.1	0.08	<0.400	<0.400	<0.500
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.650	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	1.3	<0.400	<0.400	<0.400	<0.500
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.00	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	NA	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900	<0.800	<0.900	<0.900
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	0.045	<0.400	<0.400	<0.500
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	5.3	<2.00	5.1	1.2	3.4	0.17	<0.400	<0.400	<0.500
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	0.23	<0.400	<0.400	<0.400	<0.500
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	5.2	<2.00	6.1	1.5	5.2	0.16	<0.400	<0.400	<0.500
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-03	CFW-03	CFW-03
Sample Depth(ft):		33	34	35	36	37	38	39	40	41	42	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	3 - 5	8 - 10	13 - 15
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/18/93	05/18/93	05/18/93
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9.00	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.00	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<9.00	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<4.00	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	8	<2.00	9.4	2.8	7	NA	<0.400	<0.400	<0.500
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	<0.900	<5.00	<5.00	<8.00	<0.800	<4.00	<0.900	<0.800	<0.900	<0.900
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	12	3.6	18	4.7	12	0.38	<0.400	<0.400	<0.500
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<12.0	<12.0	<19.0	<2.00	<10.0	<2.00	<2.00	<2.00	<2.00
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	0.64	<0.400	<0.400	<0.400	<0.500
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.900	NA	NA	NA
TPHs																						
>C10-C28	mg/kg	NA	<14.0	NA	8,700	NA	1,100	NA	3,900	NA	11,000	<67.0	<71.0	2,100	1,000	8,300	890	3,800	1,600	<13.0	<13.0	<13.0
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																						
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	0.0093	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	0.012	<0.00600	<0.00600	<0.00700	<0.00700
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
1,1-DICHLOROETHANE	mg/kg	0.05	NA	<0.00500	NA	0.027	NA	0.044	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	0.0072	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.650	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<1.00	NA	<0.130	<0.140	<0.140 [<0.150]	<0.140	<0.120	<0.120	<0.130	<0.130	<0.120	<0.130	<0.130

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-01	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-02	CFW-03	CFW-03	CFW-03
Sample Depth(ft):		33	34	35	36	37	38	39	40	41	42	3 - 5	8 - 10	13 - 15	18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	3 - 5	8 - 10	13 - 15
Date Collected:	Units	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/03/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/20/93	05/18/93	05/18/93	05/18/93
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	NA	<0.0120	<0.0130	<0.0130
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.30	NA	NA	NA
ACETONE	mg/kg	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<1.00	NA	<0.130	<0.140	<0.140 [<0.150]	<0.140	<0.120	<0.120	0.13	0.26	<0.120	<0.130	<0.130
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.650	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.130	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
BENZENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	0.0093	NA	0.15	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	0.025	<0.00600	0.01	<0.00600	<0.00600	<0.00700	<0.00700
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	<2.00	<2.00	<4.00	<0.400	<2.00	<0.400	<0.400	<0.400	<0.500
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
BROMOMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.0130	<0.00600	<0.00700	<0.00700
CARBON DISULFIDE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.0130	<0.00600	<0.00700	<0.00700
CARBON TETRACHLORIDE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0130	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
CHLOROETHANE	mg/kg	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130	<0.0120	<0.0130	<0.0130
CHLOROFORM	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	NA	<0.00600	<0.00700	<0.00700
cis-1,3-Dichloropropene	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130	<0.0120	<0.0130	<0.0130
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	NA	0.051	NA	0.26	NA	0.38	NA	3.4	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	0.032	0.53	0.015	0.17	<0.00600	<0.00600	<0.00700	<0.00700
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.500	NA	<0.0660	<0.0710	<0.0720 [<0.0730]	<0.0660	<0.0580	<0.0620	<0.0630	<0.0650	<0.0620	<0.0660	<0.0670
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0260	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00700	<0.00700	<0.00700	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	<0.500	7.9	<2.00	10	1.6	5.5	0.14	<0.400	<0.400	<0.500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.130	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
trans-1,3-Dichloropropene	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00700	<0.00700
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130	<0.0120	<0.0130	<0.0130
Vinyl Chloride	mg/kg	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.100	NA	<0.0130	<0.0140	<0.0140 [<0.0150]	<0.0140	<0.0120	<0.0120	<0.0130	<0.0130	<0.0120	<0.0130	<0.0130
Xylenes	mg/kg	<0.00500	NA	0.0095	NA	0.025	NA	0.05	NA	<0.0500	NA	<0.00700	<0.00700	<0.00700 [<0.00700]	<0.00700	0.0059	0.014	0.023	<0.00600	<0.00600	<0.00700	<0.00700

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	DRW-01	DRW-01	DRW-01	DRW-01	DRW-02	DRW-02	DRW-02	DRW-02	DRW-03	DRW-03	DRW-03	DRW-03	DRW-04	DRW-04	DRW-04	DRW-04	DRW-05	DRW-05
Sample Depth(ft):		18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	11/01/94	11/01/94	11/01/94	11/01/94	11/02/94	11/02/94	11/02/94	11/02/94	11/04/94	11/04/94	11/04/94	11/04/94	11/05/94	11/05/94	11/05/94	11/05/94	11/06/94	11/06/94
Metals																								
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	<7.20	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	0.980	0.570	<0.500	<0.500	0.680	0.680	<0.500	<0.500	0.710	0.530
ARSENIC	mg/kg	8.7	3.7	1.4	0.89	1.2	<0.500	4.2	1.9	1.3	<0.500	0.54	1.2	1.3	<0.500	0.52	1.2	0.8	<0.500	1.5	1.8	2.7	<0.500	0.61
BARIUM	mg/kg	1,000	110	<21.0	65	25	<100	68	260	<10.0	<100	<100	<10.0	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
CADMIUM	mg/kg	<0.600	<2.30	<0.520	<0.480	<0.560	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	17	9.2	4	2.8	5.1	<5.00	9.5	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	7	<5.00	<5.00	<5.00	<5.00
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	16	NA	NA	NA	NA	4.5	10	4.4	3	4.5	4.3	3.7	2.5	5	6	6	5	6	10	8.1	9	7	6
Hexavalent Chromium	mg/kg	<0.0130	NA	NA	NA	<0.0120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	13	4	2.9	2.2	3.3	14	15	11	<10.0	23	19	<10.0	<10.0	30	24	<10.0	<10.0	24	19	13	14	20	15
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	<0.0300	<0.320	<0.0230	<0.0230	<0.0280	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	19	NA	NA	NA	NA	5.8	14	7.9	5.4	9.3	8.1	5.6	4.5	6	6	5	4.7	7	9	8	7	8	6
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.590	<0.590	<0.510	<0.480	<0.560	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	<0.590	NA	NA	NA	NA	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
TIN	mg/kg	<12.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	<0.200	<0.170	<0.160	<0.160	<0.150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	45	NA	NA	NA	NA	11	32	18	13	9.1	9	13	10	9	13	19	21	13	25	23	22	14	13
Parameters																								
% Solids	%	75	22	10	4	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	5,500	370	90	91	3,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																								
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	0.07	<0.0500	<0.0500	<0.0500	0.07	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	10	0.068	0.74	0.14	12	32	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-BENZPHENANTHRACENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	<11.0	NA	NA	NA	NA	<0.0500	<0.0500	7.6	<0.0500	0.851	<0.0500	<0.0500	11	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,4-DICHLOROBENZENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,4-NAPHTHOQUINONE	mg/kg	<44.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<2.00	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	18	1.2	<0.400	<0.400	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	DRW-01	DRW-01	DRW-01	DRW-01	DRW-02	DRW-02	DRW-02	DRW-02	DRW-03	DRW-03	DRW-03	DRW-03	DRW-04	DRW-04	DRW-04	DRW-04	DRW-05	DRW-05
Sample Depth(ft):		18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	11/01/94	11/01/94	11/01/94	11/01/94	11/02/94	11/02/94	11/02/94	11/02/94	11/04/94	11/04/94	11/04/94	11/04/94	11/05/94	11/05/94	11/05/94	11/05/94	11/06/94	11/06/94
2-Naphthylamine	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0670	<0.0660	<0.0560	<0.0520	<0.300	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
4-NITROPHENOL	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<2.00	<0.400	<0.400	<0.400	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	<0.670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	0.46	<0.400	<0.400	<0.400	0.87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	<22.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	5.1	<0.0500	<0.0500	<0.0500	4.1	11	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
DIALLATE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	1.9	<0.400	<0.400	<0.400	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
DIETHYL PHTHALATE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	2.1	<0.400	<0.400	<0.400	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
HEXACHLOROBENZENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	DRW-01	DRW-01	DRW-01	DRW-01	DRW-02	DRW-02	DRW-02	DRW-02	DRW-03	DRW-03	DRW-03	DRW-03	DRW-04	DRW-04	DRW-04	DRW-04	DRW-05	DRW-05
Sample Depth(ft):		18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	11/01/94	11/01/94	11/01/94	11/01/94	11/02/94	11/02/94	11/02/94	11/02/94	11/04/94	11/04/94	11/04/94	11/04/94	11/05/94	11/05/94	11/05/94	11/05/94	11/06/94	11/06/94
HEXACHLOROPHENE (HCP)	mg/kg	<44.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	<22.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	<44.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	<0.400	<0.400	<0.400	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<4.00	<0.900	<0.700	<0.700	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	4.7	0.49	<0.400	<0.400	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	<11.0	<2.00	<2.00	<2.00	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	0.27	<0.400	<0.400	<0.400	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																								
>C10-C28	mg/kg	4,100	2,200	<11.0	21	5,100	<10.0	40	9,900	230	<10.0	<10.0	5,500	18,000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																								
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0130	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,1,1-Trichloroethane	mg/kg	0.55	0.096	<0.00600	<0.00500	0.27	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,1-DICHLOROETHANE	mg/kg	0.015	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,1-DICHLOROETHYLENE	mg/kg	0.048	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2,3-Trichloropropane	mg/kg	<0.0270	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<11.0	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.0130	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-DICHLOROBENZENE	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
1,4 Dichloro-2-butene	mg/kg	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	<0.670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-butanone	mg/kg	<0.130	<0.130	<0.110	<0.100	<0.600	<0.200	<0.200	2.2	0.84	<0.200	<0.200	<0.200	<0.200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		CFW-03	CFW-03	CFW-03	CFW-03	CFW-03	DRW-01	DRW-01	DRW-01	DRW-01	DRW-02	DRW-02	DRW-02	DRW-02	DRW-03	DRW-03	DRW-03	DRW-03	DRW-04	DRW-04	DRW-04	DRW-04	DRW-05	DRW-05
Sample Depth(ft):		18 - 20	23 - 25	28 - 30	33 - 35	38 - 40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20
Date Collected:	Units	05/18/93	05/18/93	05/18/93	05/18/93	05/18/93	11/01/94	11/01/94	11/01/94	11/01/94	11/02/94	11/02/94	11/02/94	11/02/94	11/04/94	11/04/94	11/04/94	11/04/94	11/05/94	11/05/94	11/05/94	11/05/94	11/06/94	11/06/94
2-CHLOR-1,3-BUTADIENE	mg/kg	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.0130	<0.0110	<0.0100	<0.0600	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
2-METHYL-1-PROPANOL	mg/kg	<1.30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.130	<0.130	<0.110	<0.100	<0.600	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	14	15	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
ACROLEIN	mg/kg	<0.670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	0.016	<0.00600	<0.00600	<0.00500	0.075	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	1.4	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<2.00	<0.400	<0.400	<0.400	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
BROMODICHLOROMETHANE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	<0.0130	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.0130	<0.00600	<0.00600	<0.00500	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CFC-11	mg/kg	<0.0130	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CFC-12	mg/kg	<0.0270	NA	NA	NA	NA	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CHLOROBENZENE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CHLOROETHANE	mg/kg	<0.0130	<0.0130	<0.0110	<0.0100	<0.0600	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CHLOROFORM	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
cis-1,3-Dichloropropene	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
DIBROMOMETHANE	mg/kg	<0.0270	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
DICHLOROMETHANE	mg/kg	0.02	<0.0130	<0.0110	<0.0100	<0.0600	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<11.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00700	0.049	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	0.79	<0.0500	<0.0500	<0.0500	0.16	4.1	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Iodomethane	mg/kg	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	1.3	<0.0500	0.65	0.19	1.4	5	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	3.9	<0.0500	<0.0500	<0.0500	2	0.24	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
M-DINITROBENZENE	mg/kg	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0670	<0.0660	<0.0560	<0.0520	<0.300	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
METHYLACRYLONITRILE	mg/kg	<0.0270	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	0.075	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
MTBE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
NAPHTHALENE	mg/kg	3.1	<0.400	<0.400	<0.400	6.4	<0.0500	<0.0500	3.4	<0.0500	<0.0500	<0.0500	5.5	7.1	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	5.2	<0.0500	<0.0500	<0.0500	5.5	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	1.7	<0.0500	0.12	<0.0500	1.6	7.8	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
o-Xylene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	3.2	<0.0500	<0.0500	<0.0500	2.8	1.9	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Propionitrile	mg/kg	<0.130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	1.9	0.051	0.095	<0.0500	2.5	6.1	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
STYRENE (MONOMER)	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
trans-1,3-Dichloropropene	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00700	<0.00600	<0.00600	<0.00500	<0.0300	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	<0.0130	<0.0130	<0.0110	<0.0100	<0.0600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.0130	<0.0130	<0.0110	<0.0100	<0.0600	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Xylenes	mg/kg	1.1	0.18	<0.00600	<0.00500	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		DRW-05	DRW-05	DRW-06	DRW-06	DRW-06	DRW-06	DRW-07	DRW-07	DRW-08	DRW-11	DRW-12	DRW-12	DRW-13	DRW-13	DRW-13	HCF-01	HCF-01	HCF-01	HCF-01	HCF-01	HCF-02	HCF-02	HCF-02
Sample Depth(ft):		30	40	10	20	30	40	38 - 40	40 - 42	36 - 38	38 - 40	35 - 37	37 - 39	16 - 18	36 - 38	38 - 40	4 - 6	19 - 20	30	35	40	0 - 5	0 - 5	5 - 10
Date Collected:	Units	11/06/94	11/06/94	11/08/94	11/08/94	11/08/94	11/08/94	03/23/97	03/23/97	03/25/97	03/18/97	03/17/97	03/17/97	03/21/97	03/21/97	03/21/97	03/28/90	03/28/90	03/28/90	03/28/90	03/28/90	03/24/92	04/08/92	03/24/92
Metals																								
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,700	NA	NA
ANTIMONY	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.0	NA	NA
ARSENIC	mg/kg	1.6	0.86	<0.500	1.1	1.6	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	NA	18	35	<2.00	NA	NA
BARIUM	mg/kg	NA	NA	<10.0	<10.0	<10.0	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	NA	<0.0500	<0.0500	44	NA	NA
BERYLLIUM	mg/kg	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	NA	NA
CADMIUM	mg/kg	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	0.5	0.25	<1.00	NA	NA
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160,000	NA	NA
Chromium	mg/kg	<5.00	<5.00	7	10	8	<5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	2	1	<2.00	NA	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	NA	NA
COPPER	mg/kg	6	6	7	12	12	8.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,800	NA	NA
LEAD	mg/kg	<10.0	10	26	22	15	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	14	4	<22.0	NA	NA
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,700	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	NA
MERCURY	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	NA	<0.0200	<0.0200	NA	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0	NA	NA
NICKEL	mg/kg	6	5	10	10	10	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8.00	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100	NA	NA
SELENIUM	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75	NA	0.8	<0.300	<60.0	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	590	NA	NA
THALLIUM	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<60.0	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	NA	NA
ZINC	mg/kg	18	11	14	26	25	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	NA	NA
Parameters																								
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,100	<40.0	<40.0
SVOCs																								
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0410	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		DRW-05	DRW-05	DRW-06	DRW-06	DRW-06	DRW-06	DRW-07	DRW-07	DRW-08	DRW-11	DRW-12	DRW-12	DRW-13	DRW-13	DRW-13	HCF-01	HCF-01	HCF-01	HCF-01	HCF-01	HCF-02	HCF-02	HCF-02
Sample Depth(ft):		30	40	10	20	30	40	38 - 40	40 - 42	36 - 38	38 - 40	35 - 37	37 - 39	16 - 18	36 - 38	38 - 40	4 - 6	19 - 20	30	35	40	0 - 5	0 - 5	5 - 10
Date Collected:	Units	11/06/94	11/06/94	11/08/94	11/08/94	11/08/94	11/08/94	03/23/97	03/23/97	03/25/97	03/18/97	03/17/97	03/17/97	03/21/97	03/21/97	03/21/97	03/28/90	03/28/90	03/28/90	03/28/90	03/28/90	03/24/92	04/08/92	03/24/92
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	NA	NA	NA	NA	<0.150	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		DRW-05	DRW-05	DRW-06	DRW-06	DRW-06	DRW-06	DRW-07	DRW-07	DRW-08	DRW-11	DRW-12	DRW-12	DRW-13	DRW-13	DRW-13	HCF-01	HCF-01	HCF-01	HCF-01	HCF-01	HCF-02	HCF-02	HCF-02
Sample Depth(ft):		30	40	10	20	30	40	38 - 40	40 - 42	36 - 38	38 - 40	35 - 37	37 - 39	16 - 18	36 - 38	38 - 40	4 - 6	19 - 20	30	35	40	0 - 5	0 - 5	5 - 10
Date Collected:	Units	11/06/94	11/06/94	11/08/94	11/08/94	11/08/94	11/08/94	03/23/97	03/23/97	03/25/97	03/18/97	03/17/97	03/17/97	03/21/97	03/21/97	03/21/97	03/28/90	03/28/90	03/28/90	03/28/90	03/28/90	03/24/92	04/08/92	03/24/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0240	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																								
>C10-C28	mg/kg	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NA	NA	NA	NA	60	NA	NA	NA	NA	2,600	NA	5,200	11,000	2,200	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																								
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0530	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0170	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0530	NA	NA
1,1-DICHLOROETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<1.25	NA	NA	NA	<0.0420	NA	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0460	NA	NA
1,1-Dichloropropene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0390	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.625	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0370	NA	NA
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0670	NA	NA
1,3-DICHLOROPROPANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	NA	NA	NA	NA	<0.150	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		DRW-05	DRW-05	DRW-06	DRW-06	DRW-06	DRW-06	DRW-07	DRW-07	DRW-08	DRW-11	DRW-12	DRW-12	DRW-13	DRW-13	DRW-13	HCF-01	HCF-01	HCF-01	HCF-01	HCF-01	HCF-02	HCF-02	HCF-02
Sample Depth(ft):		30	40	10	20	30	40	38 - 40	40 - 42	36 - 38	38 - 40	35 - 37	37 - 39	16 - 18	36 - 38	38 - 40	4 - 6	19 - 20	30	35	40	0 - 5	0 - 5	5 - 10
Date Collected:	Units	11/06/94	11/06/94	11/08/94	11/08/94	11/08/94	11/08/94	03/23/97	03/23/97	03/25/97	03/18/97	03/17/97	03/17/97	03/21/97	03/21/97	03/21/97	03/28/90	03/28/90	03/28/90	03/28/90	03/28/90	03/24/92	04/08/92	03/24/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.25	NA	NA	NA	<0.0670	NA	NA
2-CHLOROTOLUENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0110	<0.0110	<0.0120	0.071	0.017	<0.0120	<0.0620	<0.0120	<0.0120	NA	NA	NA	NA	NA	<0.190	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0720	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0330	NA	NA
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	<1.25	NA	NA	NA	<0.0670	NA	NA
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0220	NA	NA
CARBON TETRACHLORIDE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0170	NA	NA
CFC-11	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0420	NA	NA
CFC-12	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<6.25	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0340	NA	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0390	NA	NA
CHLOROETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	<1.25	NA	NA	NA	<0.0960	NA	NA
CHLOROFORM	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0370	NA	NA
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0360	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0460	NA	NA
DIBROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<1.25	NA	NA	NA	<0.0450	NA	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0470	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	0.17	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0770	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	NA	NA	NA	NA	<0.120	NA	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0580	NA	NA
MTBE	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	1.6	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	0.27	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	0.15	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0390	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	0.44	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	<0.0450	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0770	NA	NA
trans-1,2-Dichloroethene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0450	NA	NA
trans-1,3-Dichloropropene	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0190	NA	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	<0.625	NA	NA	NA	<0.0630	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.110	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0670	NA	NA
Vinyl Chloride	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0110	<0.0110	<0.0120	<0.0120	<0.0100	<0.0120	<0.0620	<0.0120	<0.0120	NA	<1.25	NA	NA	NA	<0.100	NA	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	<0.00570	<0.00560	<0.00590	<0.00590	<0.00520	<0.00590	<0.0310	<0.00610	<0.00610	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03
Sample Depth(ft):		5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25	25 - 30	25 - 30	30 - 35	30 - 35	34 - 40	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40
Date Collected:	Units	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	04/08/92	03/24/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92
Metals																							
ALUMINUM	mg/kg	NA	2,300	2,700 S	NA	11,000 S	11,000	17,000 S	7,200	8,300 S	5,700	6,500 S	4,000 S	7,200	NA	NA	NA	2,700	11,000	17,000	8,300	6,500	4,000
ANTIMONY	mg/kg	NA	<12.0	<12.0	NA	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0	NA	NA	NA	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
ARSENIC	mg/kg	NA	<32.0	<2.00	NA	<2.00	<32.0	3.1	<32.0	2.4	<32.0	<2.00	<2.00	<32.0	NA	NA	NA	<2.00	<2.00	3.1	2.4	<2.00	<2.00
BARIUM	mg/kg	NA	<40.0	42	NA	60	51	100	79	48	<40.0	43	47	<40.0	NA	NA	NA	42	60	100	48	43	47
BERYLLIUM	mg/kg	NA	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
CADMIUM	mg/kg	NA	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
CALCIUM METAL	mg/kg	NA	200,000	200,000	NA	160,000	39,000	39,000	80,000	3,700	1,100	1,900	1,500	1,500	NA	NA	NA	200,000	160,000	39,000	3,700	1,900	1,500
Chromium	mg/kg	NA	<2.00	4.60 P	NA	9.50 P	9.4	12.0 P	5.5	6.00 P	4.9	4.00 P	4.00 P	5.3	NA	NA	NA	4.6	9.5	12	5.7	4.4	4.4
COBALT	mg/kg	NA	<10.0	<10.0	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
COPPER	mg/kg	NA	<5.00	<5.00	NA	<5.00	8.1	9	<5.00	5.2	<5.00	<5.00	<5.00	<5.00	NA	NA	NA	<5.00	<5.00	9	5.2	<5.00	<5.00
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	1,700	2,100	NA	7,900	10,000	11,000	6,800	8,800	7,200	7,100	6,200	7,800	NA	NA	NA	2,100	7,900	11,000	8,800	7,100	6,200
LEAD	mg/kg	NA	<22.0	0.750 S	NA	3.20 S	<22.0	7.60 S	<22.0	6.10 S	<22.0	5.50 S	4.80 S	<22.0	NA	NA	NA	0.75	3.2	7.6	6.1	5.5	4.8
MAGNESIUM	mg/kg	NA	9,600	4,400 PS	NA	4,800 PS	4,200	5,400 PS	3,500	3,100 PS	2,300	2,500 PS	1,600 PS	2,900	NA	NA	NA	4,400	4,800	5,400	3,100	2,500	1,600
MANGANESE	mg/kg	NA	35	37	NA	100	150	210	150	85	60	63	55	150	NA	NA	NA	37	100	210	85	63	55
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	<13.0	<13.0	NA	<13.0	<13.0	<13.0	<13.0	<13.0	<13.0	<13.0	<13.0	<13.0	NA	NA	NA	<13.0	<13.0	<13.0	<13.0	<13.0	<13.0
NICKEL	mg/kg	NA	<8.00	<8.00	NA	<8.00	<8.00	<8.00	<8.00	<8.00	<8.00	<8.00	<8.00	<8.00	NA	NA	NA	<8.00	<8.00	8	<8.00	<8.00	<8.00
POTASSIUM	mg/kg	NA	550	700	NA	2,100	3,100	3,600	2,000	1,300	1,200	1,100	650	1,200	NA	NA	NA	700	2,100	3,600	1,300	1,100	650
SELENIUM	mg/kg	NA	<60.0	<1.00 S	NA	<1.00 S	<60.0	<1.00 S	<60.0	<1.00 S	<60.0	<1.00 S	<1.00 S	<60.0	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
SILVER	mg/kg	NA	<2.00	5.4	NA	2.3	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	NA	700	680	NA	520	1,200	650	1,200	590	1,400	620	940	890	NA	NA	NA	680	520	650	590	620	940
THALLIUM	mg/kg	NA	<60.0	<2.00	NA	<2.00	<60.0	<2.00	<60.0	<2.00	<60.0	<2.00	<2.00	<60.0	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	58	75	NA	140	250	180	130	260	200	180	210	190	NA	NA	NA	75	140	180	260	180	210
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	23	21	NA	35	30	35	19	24	19	20	17	20	NA	NA	NA	21	35	35	24	20	17
ZINC	mg/kg	NA	5.8	6.90 P	NA	21.0 P	26	28.0 P	20	23.0 P	19	19.0 P	16.0 P	22	NA	NA	NA	6.9	21	28	23	19	16
Parameters																							
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<40.0	2,400	1,800	4,400	11,000	2,500	300	110	11,000	86	170	2,700	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																							
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	<0.0410	<0.000840	<0.0410	<0.000840	<0.0410	<0.000840	<0.0410	<0.000840	<0.0420	<0.000840	NA	<0.0390	<0.000840	NA	NA	<0.000840	<0.000840	<0.000840	<0.000840	<0.000840	<0.000840
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Sample Depth(ft): / Date Collected:	Units	HCF-02 5 - 10 04/08/92	HCF-02 10 - 15 03/24/92	HCF-02 10 - 15 04/08/92	HCF-02 15 - 20 03/24/92	HCF-02 15 - 20 04/08/92	HCF-02 20 - 25 03/24/92	HCF-02 20 - 25 04/08/92	HCF-02 25 - 30 03/24/92	HCF-02 25 - 30 04/08/92	HCF-02 30 - 35 03/24/92	HCF-02 30 - 35 04/08/92	HCF-02 34 - 40 04/08/92	HCF-02 35 - 40 03/24/92	HCF-02 35 - 40 04/08/92	HCF-03 0 - 5 04/08/92	HCF-03 5 - 10 04/08/92	HCF-03 10 - 15 04/08/92	HCF-03 15 - 20 04/08/92	HCF-03 20 - 25 04/08/92	HCF-03 25 - 30 04/08/92	HCF-03 30 - 35 04/08/92	HCF-03 35 - 40 04/08/92
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	<0.160	<0.00320	<0.150	<0.00320	<0.160	<0.00320	<0.160	<0.00320	<0.160	<0.00320	NA	<0.150	<0.00320	NA	NA	<0.00320	<0.00320	<0.00320	<0.00320	<0.00320	<0.00320
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03
Sample Depth(ft):		5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25	25 - 30	25 - 30	30 - 35	30 - 35	34 - 40	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40
Date Collected:	Units	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	04/08/92	03/24/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	<0.0240	<0.000480	<0.0240	<0.000480	<0.0240	<0.000480	<0.0240	<0.000480	<0.0240	<0.000480	NA	<0.0220	<0.000480	NA	NA	<0.000480	<0.000480	<0.000480	<0.000480	<0.000480	<0.000480
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																							
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<40.0	<40.0	11,000	NA	300	11,000	170	5,700
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																							
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	<0.0540	NA	<0.0530	NA	<0.0540	NA	<0.0540	NA	<0.0550	NA	NA	<0.0510	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	<0.0180	<0.000360	<0.0170	<0.000360	<0.0180	<0.000360	<0.0180	<0.000360	<0.0180	<0.000360	NA	<0.0170	<0.000360	NA	NA	<0.000360	<0.000360	<0.000360	<0.000360	<0.000360	<0.000360
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	<0.00110	NA	<0.00110	NA	<0.00110	NA	<0.00110	NA	<0.00110	NA	NA	<0.00110	NA	NA	<0.00110	<0.00110	<0.00110	<0.00110	<0.00110	<0.00110
1,1,2-TRICHLOROETHANE	mg/kg	NA	<0.0540	<0.00110	<0.0530	<0.00110	<0.0540	<0.00110	<0.0540	<0.00110	<0.0550	<0.00110	NA	<0.0510	<0.00110	NA	NA	<0.00110	<0.00110	<0.00110	<0.00110	<0.00110	<0.00110
1,1-DICHLOROETHANE	mg/kg	NA	<0.0430	<0.000870	<0.0420	<0.000870	<0.0430	<0.000870	<0.0430	<0.000870	<0.0440	<0.000870	NA	<0.0400	<0.000870	NA	NA	<0.000870	<0.000870	<0.000870	<0.000870	<0.000870	<0.000870
1,1-DICHLOROETHYLENE	mg/kg	NA	<0.0480	<0.000960	<0.0460	<0.000960	<0.0480	<0.000960	<0.0480	<0.000960	<0.0480	<0.000960	NA	<0.0440	<0.000960	NA	NA	<0.000960	<0.000960	<0.000960	<0.000960	<0.000960	<0.000960
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	<0.0400	<0.000810	<0.0390	<0.000810	<0.0400	<0.000810	<0.0400	<0.000810	<0.0410	<0.000810	NA	<0.0370	<0.000810	NA	NA	<0.000810	<0.000810	<0.000810	<0.000810	<0.000810	<0.000810
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	<0.0380	<0.000780	<0.0370	<0.000780	<0.0380	<0.000780	<0.0380	<0.000780	<0.0390	<0.000780	NA	<0.0360	<0.000780	NA	NA	<0.000780	<0.000780	<0.000780	<0.000780	<0.000780	<0.000780
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	<0.0690	<0.00140	<0.0670	<0.00140	<0.0690	<0.00140	<0.0690	<0.00140	<0.0700	<0.00140	NA	<0.0640	<0.00140	NA	NA	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	<0.150	<0.00310	<0.150	0.5	<0.150	0.44	<0.150	0.81	0.35	0.28	NA	<0.140	0.53	NA	NA	<0.00310	0.5	0.44	0.81	0.28	0.53

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-02	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03	HCF-03
Sample Depth(ft):		5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25	25 - 30	25 - 30	30 - 35	30 - 35	34 - 40	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40
Date Collected:	Units	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	03/24/92	04/08/92	04/08/92	03/24/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92	04/08/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.0690	<0.00140	<0.0670	<0.00140	<0.0690	<0.00140	<0.0690	<0.00140	<0.0700	<0.00140	NA	<0.0640	<0.00140	NA	NA	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	<0.191	<0.00390	<0.190	<0.00390	<0.191	<0.00390	<0.191	<0.00390	<0.200	0.025	NA	<0.180	<0.00390	NA	NA	<0.00390	<0.00390	<0.00390	<0.00390	0.025	<0.00390
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	<0.0740	<0.00150	<0.0720	<0.00150	<0.0740	<0.00150	<0.0740	0.24	<0.0750	<0.00150	NA	<0.0690	0.16	NA	NA	<0.00150	<0.00150	<0.00150	0.24	<0.00150	0.16
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.0340	<0.000690	<0.0330	<0.000690	<0.0340	<0.000690	<0.0340	<0.000690	<0.0350	<0.000690	NA	<0.0320	<0.000690	NA	NA	<0.000690	<0.000690	<0.000690	<0.000690	<0.000690	<0.000690
BROMOMETHANE	mg/kg	NA	<0.0690	<0.00140	<0.0670	<0.00140	<0.0690	<0.00140	<0.0690	<0.00140	<0.0700	<0.00140	NA	<0.0640	<0.00140	NA	NA	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140
CARBON DISULFIDE	mg/kg	NA	<0.0220	<0.000450	<0.0220	<0.000450	<0.0220	<0.000450	<0.0220	<0.000450	<0.0230	0.068	NA	<0.0210	<0.000450	NA	NA	<0.000450	<0.000450	<0.000450	<0.000450	0.068	<0.000450
CARBON TETRACHLORIDE	mg/kg	NA	<0.0180	<0.000360	<0.0170	<0.000360	<0.0180	<0.000360	<0.0180	<0.000360	<0.0180	<0.000360	NA	<0.0170	<0.000360	NA	NA	<0.000360	<0.000360	<0.000360	<0.000360	<0.000360	<0.000360
CFC-11	mg/kg	NA	<0.0430	<0.000870	<0.0420	<0.000870	<0.0430	<0.000870	<0.0430	<0.000870	<0.0440	<0.000870	NA	<0.0400	<0.000870	NA	NA	<0.000870	<0.000870	<0.000870	<0.000870	<0.000870	<0.000870
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	<0.0340	<0.000690	<0.0340	<0.000690	<0.0340	<0.000690	<0.0340	<0.000690	<0.0350	<0.000690	NA	<0.0320	<0.000690	NA	NA	<0.000690	<0.000690	<0.000690	<0.000690	<0.000690	<0.000690
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	<0.0400	<0.000810	<0.0390	<0.000810	<0.0400	<0.000810	<0.0400	<0.000810	<0.0410	<0.000810	NA	<0.0370	<0.000810	NA	NA	<0.000810	<0.000810	<0.000810	<0.000810	<0.000810	<0.000810
CHLOROETHANE	mg/kg	NA	<0.0980	<0.00200	<0.0960	<0.00200	<0.0980	<0.00200	<0.0980	<0.00200	<0.100	<0.00200	NA	<0.0920	<0.00200	NA	NA	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
CHLOROFORM	mg/kg	NA	<0.0380	<0.000780	<0.0370	<0.000780	<0.0380	<0.000780	<0.0380	<0.000780	<0.0390	<0.000780	NA	<0.0360	<0.000780	NA	NA	<0.000780	<0.000780	<0.000780	<0.000780	<0.000780	<0.000780
CHLOROMETHANE	mg/kg	NA	NA	<0.000570	NA	<0.000570	NA	<0.000570	NA	<0.000570	NA	<0.000570	NA	NA	<0.000570	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.0370	<0.000750	<0.0360	<0.000750	<0.0370	<0.000750	<0.0370	<0.000750	<0.0380	<0.000750	NA	<0.0350	<0.000750	NA	NA	<0.000750	<0.000750	<0.000750	<0.000750	<0.000750	<0.000750
cis-1,3-Dichloropropene	mg/kg	NA	<0.0470	<0.000960	<0.0460	<0.000960	<0.0470	<0.000960	<0.0470	<0.000960	<0.0480	<0.000960	NA	<0.0440	<0.000960	NA	NA	<0.000960	<0.000960	<0.000960	<0.000960	<0.000960	<0.000960
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	0.069	<0.000960	<0.0450	<0.000930	<0.0460	0.0064	<0.0460	<0.000930	<0.0470	0.0065	NA	0.045	<0.000930	NA	NA	<0.000930	<0.000930	0.0064	<0.000930	0.0065	<0.000930
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	<0.0470	<0.000960	0.16	<0.000960	0.1	0.076	<0.0470	5.7	<0.0480	0.028	NA	<0.0440	1.8	NA	NA	<0.000960	<0.000960	0.076	5.7	0.028	1.8
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	<0.0780	<0.00160	0.12	1.3	0.095	<0.00160	<0.0780	<0.00160	<0.0800	<0.00160	NA	1.8	<0.00160	NA	NA	<0.00160	1.3	<0.00160	<0.00160	<0.00160	<0.00160
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	<0.120	<0.00240	<0.120	<0.00240	<0.120	<0.00240	<0.120	<0.00240	<0.120	<0.00240	NA	<0.110	<0.00240	NA	NA	<0.00240	<0.00240	<0.00240	<0.00240	<0.00240	<0.00240
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	<0.0590	<0.00120	<0.0580	<0.00120	<0.0590	0.0045	<0.0590	<0.00120	<0.0600	<0.00120	NA	<0.0550	<0.00120	NA	NA	<0.00120	<0.00120	0.0045	<0.00120	<0.00120	<0.00120
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	<0.0400	<0.000810	<0.0390	<0.000810	<0.0400	<0.000810	<0.0400	0.068	<0.0410	<0.000810	NA	3.3	0.118	NA	NA	<0.000810	<0.000810	<0.000810	0.068	<0.000810	0.118
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	<0.0460	<0.000930	<0.0450	<0.000930	<0.0460	<0.000930	<0.0460	<0.000930	<0.0470	<0.000930	NA	<0.0430	<0.000930	NA	NA	<0.000930	<0.000930	<0.000930	<0.000930	<0.000930	<0.000930
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	<0.0780	<0.00160	<0.0770	<0.00160	<0.0780	0.025	<0.0780	0.099	<0.0800	<0.00160	NA	<0.0740	<0.00160	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	<0.0460	<0.000930	<0.0450	<0.000930	<0.0460	<0.000930	<0.0460	<0.000930	<0.0470	<0.000930	NA	<0.0430	<0.000930	NA	NA	<0.000930	<0.000930	<0.000930	<0.000930	<0.000930	<0.000930
trans-1,3-Dichloropropene	mg/kg	NA	<0.0190	<0.000390	<0.0190	<0.000390	<0.0190	<0.000390	<0.0190	<0.000390	<0.0200	<0.000390	NA	<0.0180	<0.000390	NA	NA	<0.000390	<0.000390	<0.000390	<0.000390	<0.000390	<0.000390
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	<0.0640	<0.00130	<0.0630	<0.00130	<0.0640	<0.00130	<0.0640	<0.00130	<0.0650	<0.00130	NA	<0.0600	<0.00130	NA	NA	<0.00130	<0.00130	<0.00130	<0.00130	<0.00130	<0.00130
TRICHLOROETHYLENE	mg/kg	NA	<0.110	<0.00230	<0.110	<0.00230	<0.110	<0.00230	<0.110	<0.00230	<0.120	<0.00230	NA	<0.110	<0.00230	NA	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	mg/kg	NA	<0.0690	<0.00140	<0.0670	<0.00140	<0.0690	<0.00140	<0.0690	<0.00140	<0.0700	<0.00140	NA	<0.0640	<0.00140	NA	NA	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140	<0.00140
Vinyl Chloride	mg/kg	NA	<0.103	<0.00210	<0.100	<0.00210	<0.103	<0.00210	<0.103	<0.00210	<0.110	<0.00210	NA	<0.0970	<0.00210	NA	NA	<0.00210	<0.00210	<0.00210	<0.00210	<0.00210	<0.00210
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE200	HCF-NE200	HCF-NE200
Sample Depth(ft):		0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15
Date Collected:	Units	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	05/20/92	05/20/92	05/20/92
Metals																				
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,900	17,000	12,000	11,000	NA	7,100	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.0	<12.0	<12.0	<12.0	NA	21.0	NA	NA	NA
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	9	5.3	7.1	NA	5.5	NA	NA	NA
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	43.0 S	62.0 S	140 S	130 S	NA	<40.0 S	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	NA	<1.00	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	NA	<1.00	NA	NA	NA
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160,000	64,000	40,000	55,000	NA	7,500	NA	NA	NA
Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	15	10	8.4	NA	5.9	NA	NA	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	NA	<10.0	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	19	18	15	NA	8.1	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,300	17,000	11,000	9,800	NA	8,400	NA	NA	NA
LEAD	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.920 S	5.40 S	5.80 S	6.60 S	NA	4.70 S	NA	NA	NA
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,000	9,000	5,900	4,400	NA	4,100	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.0 P	140 P	190 P	150 P	NA	220 P	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0	25	<13.0	<13.0	NA	<13.0	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8.00	12	<8.00	<8.00	NA	<8.00	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	560	3,400	2,800	2,600	NA	1,400	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00 S	<1.00 S	<1.00	<1.00 S	NA	<1.00 S	NA	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	NA	<2.00	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	660	1,400	1,200	NA	1,200	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	NA	<2.00	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	78	130	170	170	NA	140	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22	70	31	27	NA	18	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	40	27	24	NA	23	NA	NA	NA
Parameters																				
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	250	<40.0	230	<40.0	1,000	<40.0	<40.0	<40.0
SVOCs																				
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0840	<0.0840	<0.0840	<0.0840	NA	<0.0840	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE200	HCF-NE200	HCF-NE200
Sample Depth(ft):		0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15
Date Collected:	Units	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	05/20/92	05/20/92	05/20/92
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.320	<0.320	<0.320	<0.320	NA	<0.320	NA	NA	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE200	HCF-NE200	HCF-NE200
Sample Depth(ft):		0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15
Date Collected:	Units	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	05/20/92	05/20/92	05/20/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0480	<0.0480	<0.0480	<0.0480	NA	<0.0480	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																				
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																				
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0360	<0.0360	0.42	<0.0360	NA	<0.0360	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.110	<0.110	<0.110	<0.110	NA	<0.110	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.110	<0.110	<0.110	<0.110	NA	<0.110	NA	NA	NA
1,1-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0870	<0.0870	<0.0870	<0.0870	NA	<0.0870	NA	NA	NA
1,1-DICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0960	<0.0960	<0.0960	<0.0960	NA	<0.0960	NA	NA	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0810	<0.0810	<0.0810	<0.0810	NA	<0.0810	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0780	<0.0780	<0.0780	<0.0780	NA	<0.0780	NA	NA	NA
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.140	<0.140	<0.140	<0.140	NA	<0.140	NA	NA	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.310	<0.310	<0.310	<0.310	NA	<0.310	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-E200	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE100	HCF-NE200	HCF-NE200	HCF-NE200
Sample Depth(ft):		0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15
Date Collected:	Units	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/01/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	06/02/92	05/20/92	05/20/92	05/20/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.140	<0.140	<0.140	<0.140	NA	<0.140	NA	NA	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.390	<0.390	<0.390	<0.390	NA	<0.390	NA	NA	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.150	<0.150	0.59	<0.150	NA	<0.150	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0690	<0.0690	<0.0690	<0.0690	NA	<0.0690	NA	NA	NA
BROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0140	0.14	0.14	<0.0140	NA	<0.0140	NA	NA	NA
CARBON DISULFIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0450	<0.0450	<0.0450	<0.0450	NA	<0.0450	NA	NA	NA
CARBON TETRACHLORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0360	<0.0360	<0.0360	<0.0360	NA	<0.0360	NA	NA	NA
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0870	<0.0870	<0.0870	<0.0870	NA	<0.0870	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0690	<0.0690	<0.0690	<0.0690	NA	<0.0690	NA	NA	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0810	<0.0810	<0.0810	<0.0810	NA	<0.0810	NA	NA	NA
CHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	NA	<0.200	NA	NA	NA
CHLOROFORM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0780	<0.0780	<0.0780	<0.0780	NA	<0.0780	NA	NA	NA
CHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0570	<0.0570	<0.0570	<0.0570	NA	<0.0570	NA	NA	NA
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0750	<0.0750	<0.0750	<0.0750	NA	<0.0750	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0960	<0.0960	<0.0960	<0.0960	NA	<0.0960	NA	NA	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0930	<0.0930	<0.0930	<0.0930	NA	<0.0930	NA	NA	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0960	<0.0960	3.9	<0.0960	NA	<0.0960	NA	NA	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.160	<0.160	1.2	<0.160	NA	<0.160	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.240	<0.240	<0.240	<0.240	NA	<0.240	NA	NA	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.120	<0.120	<0.120	<0.120	NA	<0.120	NA	NA	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0810	<0.0810	4.5	<0.0810	NA	<0.0810	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0930	<0.0930	<0.0930	<0.0930	NA	<0.0930	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.160	<0.160	<0.160	<0.160	NA	<0.160	NA	NA	NA
trans-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0930	<0.0930	<0.0930	<0.0930	NA	<0.0930	NA	NA	NA
trans-1,3-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0390	<0.0390	<0.0390	<0.0390	NA	<0.0390	NA	NA	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.130	<0.130	<0.130	<0.130	NA	<0.130	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.230	<0.230	<0.230	<0.230	NA	<0.230	NA	NA	NA
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.140	<0.140	<0.140	<0.140	NA	<0.140	NA	NA	NA
Vinyl Chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0210	0.21	0.21	<0.0210	NA	<0.0210	NA	NA	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-SW100
Sample Depth(ft):		15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	7.5 - 9	12 - 13.5	12 - 13.5	13.5 - 15	13.5 - 15	18.5 - 20	18.5 - 20	23.5 - 25	23.5 - 25	28.5 - 30	33.5 - 35	38.5 - 40	38.5 - 40	0 - 5
Date Collected:	Units	05/20/92	05/20/92	05/20/92	05/20/92	05/20/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/23/92	01/23/92	01/22/92	01/23/92	03/23/92
Metals																				
ALUMINUM	mg/kg	NA	15,000	NA	NA	NA	NA	3,300 D	NA	4,800 D	NA	26,000	NA	11,000	NA	NA	NA	2,500	NA	NA
ANTIMONY	mg/kg	NA	14.0	NA	NA	NA	NA	<24.0 D	NA	<24.0 D	NA	<12.0	NA	<12.0	NA	NA	NA	<12.0	NA	NA
ARSENIC	mg/kg	NA	5.1	NA	NA	NA	NA	<64.0 D	NA	<64.0 D	NA	<32.0	NA	<32.0	NA	NA	NA	<32.0	NA	NA
BARIUM	mg/kg	NA	120	NA	NA	NA	NA	<80.0 D	NA	<80.0 D	NA	140	NA	71	NA	NA	NA	<40.0	NA	NA
BERYLLIUM	mg/kg	NA	<1.00	NA	NA	NA	NA	<2.00 D	NA	<2.00 D	NA	<1.00	NA	<1.00	NA	NA	NA	<1.00	NA	NA
CADMIUM	mg/kg	NA	<1.00	NA	NA	NA	NA	<2.00 D	NA	<2.00 D	NA	1.2	NA	<1.00	NA	NA	NA	<1.00	NA	NA
CALCIUM METAL	mg/kg	NA	50,000 P	NA	NA	NA	NA	200,000 D	NA	130,000 D	NA	19,000	NA	37,000	NA	NA	NA	3,400	NA	NA
Chromium	mg/kg	NA	13	NA	NA	NA	NA	<4.00 D	NA	<4.00 D	NA	19	NA	7	NA	NA	NA	<2.00	NA	NA
COBALT	mg/kg	NA	<10.0	NA	NA	NA	NA	<20.0 D	NA	<20.0 D	NA	<10.0	NA	<10.0	NA	NA	NA	<10.0	NA	NA
COPPER	mg/kg	NA	10	NA	NA	NA	NA	13.0 D	NA	<10.0 D	NA	12	NA	<5.00	NA	NA	NA	<5.00	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	12,000	NA	NA	NA	NA	3,200 D	NA	5,200 D	NA	22,000	NA	9,700	NA	NA	NA	4,300	NA	NA
LEAD	mg/kg	NA	5.8	NA	NA	NA	NA	65.0 D	NA	<44.0 D	NA	49.0 S	NA	<22.0 S	NA	NA	NA	<22.0 S	NA	NA
MAGNESIUM	mg/kg	NA	5,700	NA	NA	NA	NA	5,900 D	NA	8,700 D	NA	17,000	NA	4,900	NA	NA	NA	1,300	NA	NA
MANGANESE	mg/kg	NA	220	NA	NA	NA	NA	41.0 D	NA	130 D	NA	330	NA	120	NA	NA	NA	43	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	<13.0	NA	NA	NA	NA	<26.0 D	NA	<26.0 D	NA	<13.0	NA	<13.0	NA	NA	NA	<13.0	NA	NA
NICKEL	mg/kg	NA	9.3	NA	NA	NA	NA	<16.0 D	NA	<16.0 D	NA	14	NA	<8.00	NA	NA	NA	<8.00	NA	NA
POTASSIUM	mg/kg	NA	4,100	NA	NA	NA	NA	<2,000 D	NA	<2,000 D	NA	5,100	NA	2,500	NA	NA	NA	<1,000	NA	NA
SELENIUM	mg/kg	NA	<1.00	NA	NA	NA	NA	<120 D	NA	<120 D	NA	<60.0	NA	<60.0	NA	NA	NA	<60.0	NA	NA
SILVER	mg/kg	NA	<2.00	NA	NA	NA	NA	4.80 D	NA	<4.00 D	NA	<2.00	NA	<2.00	NA	NA	NA	<2.00	NA	NA
SODIUM	mg/kg	NA	1,900	NA	NA	NA	NA	<2,000 D	NA	<2,000 D	NA	<1,000	NA	<1,000	NA	NA	NA	<1,000	NA	NA
THALLIUM	mg/kg	NA	<2.00 S	NA	NA	NA	NA	<120 D	NA	<120 D	NA	<60.0	NA	<60.0	NA	NA	NA	<60.0	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	200	NA	NA	NA	NA	77.0 D	NA	150 D	NA	220	NA	150	NA	NA	NA	120	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	31	NA	NA	NA	NA	<20.0 D	NA	<20.0 D	NA	62	NA	21	NA	NA	NA	<10.0	NA	NA
ZINC	mg/kg	NA	33	NA	NA	NA	NA	<8.00 D	NA	8.60 D	NA	54	NA	21	NA	NA	NA	11	NA	NA
Parameters																				
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	41	NA	31	NA	71	NA	74	NA	NA	NA	370	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	6.8	NA	7.3	NA	19	NA	15	NA	NA	NA	2.8	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<40.0	2,300	<40.0	<40.0	<40.0	<40.0	NA	2,300	NA	300	NA	1,200	NA	2,000	<40.0	<40.0	NA	2,100	<40.0
SVOCs																				
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	<0.000840	NA	NA	NA	NA	NA	<0.00220 H	NA	<0.00130 H	NA	<0.00220 H	NA	<0.00190 H	NA	NA	NA	<0.00190 H	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-SW100
Sample Depth(ft):		15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	7.5 - 9	12 - 13.5	12 - 13.5	13.5 - 15	13.5 - 15	18.5 - 20	18.5 - 20	23.5 - 25	23.5 - 25	28.5 - 30	33.5 - 35	38.5 - 40	38.5 - 40	0 - 5
Date Collected:	Units	05/20/92	05/20/92	05/20/92	05/20/92	05/20/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/23/92	01/23/92	01/22/92	01/23/92	03/23/92
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	<0.00320	NA	NA	NA	NA	NA	<0.00830 H	NA	<0.00500 H	NA	<0.00830 H	NA	<0.00700 H	NA	NA	NA	<0.00740 H	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-SW100
Sample Depth(ft):		15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	7.5 - 9	12 - 13.5	12 - 13.5	13.5 - 15	13.5 - 15	18.5 - 20	18.5 - 20	23.5 - 25	23.5 - 25	28.5 - 30	33.5 - 35	38.5 - 40	38.5 - 40	0 - 5
Date Collected:	Units	05/20/92	05/20/92	05/20/92	05/20/92	05/20/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/23/92	01/23/92	01/22/92	01/23/92	03/23/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	<0.000480	NA	NA	NA	NA	NA	<0.00120 H	NA	<0.000750 H	NA	<0.00120 H	NA	<0.00110 H	NA	NA	NA	<0.00110 H	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																				
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																				
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	0.061	NA	NA	NA	NA	NA	<0.000920 H	NA	<0.000560 H	NA	<0.000930 H	NA	<0.000790 H	NA	NA	NA	<0.000800 H	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	<0.00110	NA	NA	NA	NA	NA	<0.00280 H	NA	<0.00170 H	NA	<0.00290 H	NA	<0.00240 H	NA	NA	NA	<0.00250 H	NA
1,1,2-TRICHLOROETHANE	mg/kg	NA	<0.00110	NA	NA	NA	NA	NA	<0.00280 H	NA	<0.00170 H	NA	<0.00290 H	NA	<0.00240 H	NA	NA	NA	<0.00250 H	NA
1,1-DICHLOROETHANE	mg/kg	NA	<0.000870	NA	NA	NA	NA	NA	<0.00220 H	NA	<0.00140 H	NA	<0.00230 H	NA	<0.00190 H	NA	NA	NA	<0.00200 H	NA
1,1-DICHLOROETHYLENE	mg/kg	NA	<0.000960	NA	NA	NA	NA	NA	<0.00250 H	NA	<0.00150 H	NA	<0.00250 H	NA	<0.00210 H	NA	NA	NA	<0.00220 H	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	<0.000810	NA	NA	NA	NA	NA	<0.00210 H	NA	<0.00130 H	NA	<0.00210 H	NA	<0.00180 H	NA	NA	NA	<0.00190 H	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	<0.000360	NA	NA	NA	NA	NA	<0.00200 H	NA	<0.00120 H	NA	<0.00200 H	NA	<0.00170 H	NA	NA	NA	<0.00180 H	NA
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	<0.00140	NA	NA	NA	NA	NA	<0.00360 H	NA	<0.00220 H	NA	<0.00360 H	NA	<0.00310 H	NA	NA	NA	<0.00320 H	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	0.017	NA	NA	NA	NA	NA	<0.00800 H	NA	<0.00180 H	NA	<0.00800 H	NA	<0.00680 H	NA	NA	NA	<0.00710 H	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-NE200	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-S100	HCF-SW100
Sample Depth(ft):		15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	7.5 - 9	12 - 13.5	12 - 13.5	13.5 - 15	13.5 - 15	18.5 - 20	18.5 - 20	23.5 - 25	23.5 - 25	28.5 - 30	33.5 - 35	38.5 - 40	38.5 - 40	0 - 5
Date Collected:	Units	05/20/92	05/20/92	05/20/92	05/20/92	05/20/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/22/92	01/23/92	01/23/92	01/23/92	01/22/92	01/23/92	03/23/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.00140	NA	NA	NA	NA	NA	<0.00360 H	NA	<0.00220 H	NA	<0.00360 H	NA	<0.00310 H	NA	NA	NA	<0.00320 H	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	0.087	NA	NA	NA	NA	NA	0.0600 H	NA	<0.00610 H	NA	<0.0100 H	NA	<0.00860 H	NA	NA	NA	<0.00570 H	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	0.078	NA	NA	NA	NA	NA	<0.00390 H	NA	<0.00230 H	NA	<0.00390 H	NA	<0.00330 H	NA	NA	NA	<0.00350 H	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.000690	NA	NA	NA	NA	NA	<0.00180 H	NA	<0.00110 H	NA	<0.00180 H	NA	<0.00150 H	NA	NA	NA	<0.00160 H	NA
BROMOMETHANE	mg/kg	NA	<0.00140	NA	NA	NA	NA	NA	<0.00360 H	NA	<0.00220 H	NA	<0.00360 H	NA	<0.00310 H	NA	NA	NA	<0.00320 H	NA
CARBON DISULFIDE	mg/kg	NA	<0.000450	NA	NA	NA	NA	NA	0.00150 H	NA	<0.000700 H	NA	<0.00120 H	NA	<0.000990 H	NA	NA	NA	<0.00100 H	NA
CARBON TETRACHLORIDE	mg/kg	NA	<0.000360	NA	NA	NA	NA	NA	<0.000920 H	NA	<0.000560 H	NA	<0.000930 H	NA	<0.000790 H	NA	NA	NA	<0.000800 H	NA
CFC-11	mg/kg	NA	<0.000870	NA	NA	NA	NA	NA	<0.00220 H	NA	0.00660 H	NA	<0.00230 H	NA	<0.00190 H	NA	NA	NA	<0.00200 H	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	<0.000690	NA	NA	NA	NA	NA	<0.00180 H	NA	<0.00110 H	NA	<0.00180 H	NA	<0.00150 H	NA	NA	NA	<0.00160 H	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	0.0026	NA	NA	NA	NA	NA	<0.00210 H	NA	<0.00130 H	NA	<0.00210 H	NA	<0.00180 H	NA	NA	NA	<0.00190 H	NA
CHLOROETHANE	mg/kg	NA	<0.00200	NA	NA	NA	NA	NA	<0.00520 H	NA	<0.00310 H	NA	<0.00520 H	NA	<0.00440 H	NA	NA	NA	<0.00460 H	NA
CHLOROFORM	mg/kg	NA	<0.000780	NA	NA	NA	NA	NA	<0.00200 H	NA	<0.00120 H	NA	<0.00200 H	NA	<0.00170 H	NA	NA	NA	<0.00180 H	NA
CHLOROMETHANE	mg/kg	NA	<0.000570	NA	NA	NA	NA	NA	<0.00150 H	NA	<0.000890 H	NA	<0.00150 H	NA	<0.00130 H	NA	NA	NA	<0.00130 H	NA
cis-1,2-Dichloroethene	mg/kg	NA	<0.000750	NA	NA	NA	NA	NA	<0.00190 H	NA	<0.00120 H	NA	<0.00190 H	NA	<0.00170 H	NA	NA	NA	<0.00170 H	NA
cis-1,3-Dichloropropene	mg/kg	NA	<0.000960	NA	NA	NA	NA	NA	<0.00250 H	NA	<0.00150 H	NA	<0.00250 H	NA	<0.00210 H	NA	NA	NA	<0.00220 H	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	0.0027	NA	NA	NA	NA	NA	<0.00240 H	NA	<0.00150 H	NA	<0.00240 H	NA	<0.00210 H	NA	NA	NA	<0.00210 H	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	<0.000960	NA	NA	NA	NA	NA	0.480 H	NA	0.0550 H	NA	<0.00250 H	NA	0.0390 H	NA	NA	NA	<0.00220 H	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	0.400 E	NA	NA	NA	NA	NA	<0.00410 H	NA	<0.00250 H	NA	<0.00410 H	NA	<0.00350 H	NA	NA	NA	<0.00370 H	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	<0.00240	NA	NA	NA	NA	NA	<0.00620 H	NA	<0.00370 H	NA	<0.00620 H	NA	<0.00530 H	NA	NA	NA	<0.00550 H	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	<0.00120	NA	NA	NA	NA	NA	<0.00310 H	NA	<0.00190 H	NA	<0.00310 H	NA	<0.00260 H	NA	NA	NA	0.00390 H	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	0.870 E	NA	NA	NA	NA	NA	0.150 H	NA	<0.00130 H	NA	<0.00210 H	NA	0.00190 H	NA	NA	NA	0.00200 H	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	<0.000930	NA	NA	NA	NA	NA	<0.00240 H	NA	<0.00150 H	NA	<0.00240 H	NA	<0.00210 H	NA	NA	NA	<0.00210 H	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	<0.00160	NA	NA	NA	NA	NA	<0.00410 H	NA	<0.00250 H	NA	<0.00410 H	NA	<0.00350 H	NA	NA	NA	<0.00370 H	NA
trans-1,2-Dichloroethene	mg/kg	NA	<0.000930	NA	NA	NA	NA	NA	<0.00240 H	NA	<0.00150 H	NA	<0.00240 H	NA	<0.00210 H	NA	NA	NA	<0.00210 H	NA
trans-1,3-Dichloropropene	mg/kg	NA	<0.000390	NA	NA	NA	NA	NA	<0.00100 H	NA	<0.000610 H	NA	<0.00100 H	NA	<0.000900 H	NA	NA	NA	<0.000900 H	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	<0.00130	NA	NA	NA	NA	NA	<0.00340 H	NA	<0.00200 H	NA	<0.00340 H	NA	<0.00290 H	NA	NA	NA	<0.00300 H	NA
TRICHLOROETHYLENE	mg/kg	NA	<0.00230	NA	NA	NA	NA	NA	<0.00590 H	NA	<0.00360 H	NA	<0.00600 H	NA	<0.00510 H	NA	NA	NA	<0.00530 H	NA
VINYL ACETATE	mg/kg	NA	<0.00140	NA	NA	NA	NA	NA	<0.00360 H	NA	<0.00220 H	NA	<0.00360 H	NA	<0.00310 H	NA	NA	NA	<0.00320 H	NA
Vinyl Chloride	mg/kg	NA	<0.00210	NA	NA	NA	NA	NA	<0.00540 H	NA	<0.00330 H	NA	<0.00540 H	NA	<0.00460 H	NA	NA	NA	<0.00480 H	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300
Sample Depth(ft):		5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25
Date Collected:	Units	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93
Metals																		
ALUMINUM	mg/kg	NA	2,400	NA	19,000	3,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	<12.0	NA	<12.0	<12.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	<32.0	NA	<32.0	<32.0	NA	NA	NA	<0.500	NA	<0.460	NA	2.2	NA	1.2	NA	2.1
BARIUM	mg/kg	NA	<40.0	NA	200	<40.0	NA	NA	NA	<93.0	NA	71	NA	64	NA	120	NA	300
BERYLLIUM	mg/kg	NA	<1.00	NA	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	<1.00	NA	<1.00	<1.00	NA	NA	NA	<2.30	NA	<0.620	NA	<0.570	NA	<0.570	NA	<0.560
CALCIUM METAL	mg/kg	NA	190,000	NA	98,000	1,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	NA	<2.00	NA	13	3.7	NA	NA	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0500	NA	<0.0500
COBALT	mg/kg	NA	<10.0	NA	<10.0	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	<5.00	NA	7.7	<5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	2,100	NA	14,000	7,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	NA	<22.0	NA	<22.0	<22.0	NA	NA	NA	3.7	NA	4.1	NA	2.9	NA	3.9	NA	3.2
MAGNESIUM	mg/kg	NA	6,900	NA	6,600	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	47	NA	540	66	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	<0.0240	NA	<0.0210	NA	<0.0220	NA	<0.0220	NA	<0.0230
MOLYBDENUM	mg/kg	NA	<13.0	NA	<13.0	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	<8.00	NA	8.2	<8.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	520	NA	5,000	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	<60.0	NA	<60.0	<60.0	NA	NA	NA	<0.500	NA	<0.460	NA	<0.490	NA	<0.420	NA	<0.510
SILVER	mg/kg	NA	<2.00 S	NA	<2.00 S	<2.00 S	NA	NA	NA	<4.70	NA	<1.20	NA	<1.10	NA	<1.10	NA	<1.10
SODIUM	mg/kg	NA	670	NA	950	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	<60.0	NA	<60.0	<60.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	60	NA	250	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	21	NA	45	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	6.4	NA	35	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																		
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<40.0	42	440	230	1,100	<40.0	<40.0	<40.0	3,900	<40.0	11,000	<40.0	620	<40.0	<12.0	<40.0	630
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	<0.0420	<0.0390	<0.0410	<0.0390	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300
Sample Depth(ft):		5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25
Date Collected:	Units	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	<0.160	<0.150	<0.160	<0.150	NA	NA	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300
Sample Depth(ft):		5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25
Date Collected:	Units	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	<0.0240	<0.0230	<0.0240	<0.0230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																		
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	NA	<0.0180	<0.0170	<0.0180	<0.0170	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	<0.0550	<0.0520	<0.0540	<0.0520	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	NA	<0.0550	<0.0520	<0.0540	<0.0520	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHANE	mg/kg	NA	<0.0440	<0.0410	<0.0430	<0.0410	NA	NA	NA	0.044	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	NA	<0.0480	<0.0450	<0.0470	<0.0450	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	<0.0410	<0.0380	<0.0400	<0.0380	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	<0.0390	<0.0370	<0.0380	<0.0370	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	<0.0700	<0.0660	<0.0690	<0.0660	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	NA	<0.160	0.37	0.18	<0.150	NA	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW100	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300
Sample Depth(ft):		5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20	15 - 20	20 - 25	20 - 25
Date Collected:	Units	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	03/23/92	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.0700	<0.0660	<0.0690	<0.0660	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	<0.200	<0.180	<0.190 B	<0.180	NA	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100	NA	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	<0.0750	<0.0710	<0.0740	<0.0710	NA	NA	NA	0.0093	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	<0.0350	<0.0320	<0.0340	<0.0320	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
BROMOMETHANE	mg/kg	NA	<0.0700	<0.0660	<0.0690	<0.0660	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CARBON DISULFIDE	mg/kg	NA	<0.0230	<0.0210	<0.0220	<0.0210	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CARBON TETRACHLORIDE	mg/kg	NA	<0.0180	<0.0170	<0.0180	<0.0170	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CFC-11	mg/kg	NA	<0.0440	<0.0410	<0.0430	<0.0410	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	<0.0350	<0.0320	<0.0340	<0.0320	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	NA	<0.0410	<0.0380	<0.0400	<0.0380	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROETHANE	mg/kg	NA	<0.100	<0.0940	<0.0980	<0.0940	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
CHLOROFORM	mg/kg	NA	<0.0390	<0.0370	<0.0380	<0.0370	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROMETHANE	mg/kg	NA	<0.0290	<0.0270	<0.0280	<0.0270	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
cis-1,2-Dichloroethene	mg/kg	NA	<0.0380	<0.0350	<0.0370	<0.0350	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
cis-1,3-Dichloropropene	mg/kg	NA	<0.0480	<0.0450	<0.0470	<0.0450	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	NA	<0.0450 B	<0.0440	<0.0420 B	0.05	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	<0.0480	<0.0450	<0.0470	<0.0450	NA	NA	NA	0.38	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	<0.0370 B	<0.0750	<0.0780	0.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	<0.120	<0.110	<0.120	<0.110	NA	NA	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	<0.0360 B	<0.0240 B	<0.0380 B	<0.0560	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	<0.0180 B	<0.0380	<0.0400	0.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	NA	<0.0470	<0.0440	<0.0460	<0.0440	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	NA	<0.0800	<0.0750	<0.0780	<0.0750	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
trans-1,2-Dichloroethene	mg/kg	NA	<0.0470	<0.0440	<0.0460	<0.0440	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
trans-1,3-Dichloropropene	mg/kg	NA	<0.0200	<0.0180	<0.0190	<0.0180	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	<0.0650	<0.0610	<0.0640	<0.0610	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
TRICHLOROETHYLENE	mg/kg	NA	<0.120	<0.110	<0.110	<0.110	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA	<0.00500
VINYL ACETATE	mg/kg	NA	<0.0700	<0.0660	<0.0690	<0.0660	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
Vinyl Chloride	mg/kg	NA	<0.110	<0.0990	<0.100 B	<0.0990	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	0.05	NA	<0.00500	NA	<0.00500	NA	0.11	NA	0.032

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HLSF-SB-011	HLSF-SB-011	HLSF-SB-011
Sample Depth(ft):		25 - 30	25 - 30	30 - 35	30 - 35	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	10 - 11	20 - 21	30 - 32
Date Collected:	Units	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	11/16/06	11/16/06	11/16/06
Metals																		
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,900 P	16,000 P	17,000 P	NA	2,200 P	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<12.0	<12.0	<12.0	NA	<12.0	NA	NA	NA
ARSENIC	mg/kg	NA	2.7	NA	1.7	NA	2	NA	NA	NA	<32.0	<32.0	<32.0	NA	<32.0	NA	NA	NA
BARIUM	mg/kg	NA	67	NA	30	NA	37	NA	NA	NA	50	120	140	NA	<40.0	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	NA	<1.00	NA	NA	NA
CADMIUM	mg/kg	NA	<0.600	NA	<0.570	NA	<0.610	NA	NA	NA	<1.00	<1.00	<1.00	NA	<1.00	NA	NA	NA
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	130,000	51,000	21,000	NA	1,100	NA	NA	NA
Chromium	mg/kg	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	NA	NA	3.30 P	13.0 P	14.0 P	NA	3.50 P	<0.500	5.41	3.02 [3.18]
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	<10.0	<10.0	NA	<10.0	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	12	12	NA	<5.00	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	<5.00	<5.00 [<5.00]
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,200 P	14,000 P	17,000 P	NA	4,800 P	NA	NA	NA
LEAD	mg/kg	NA	4.2	NA	3	NA	3.2	NA	NA	NA	<22.0	<22.0	<22.0	NA	<22.0	2.87	10.7	8.42 [10.2]
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	4,800 P	7,600 P	7,500 P	NA	1,100 P	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	67	260	120	NA	65	NA	NA	NA
MERCURY	mg/kg	NA	<0.0230	NA	<0.0240	NA	<0.0210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<13.0	<13.0	<13.0	NA	<13.0	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<8.00	9	11	NA	<8.00	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100 P	3,200 P	3,300 P	NA	<400 P	NA	NA	NA
SELENIUM	mg/kg	NA	<0.500	NA	<0.500	NA	<0.510	NA	NA	NA	<60.0	<60.0	<60.0	NA	<60.0	NA	NA	NA
SILVER	mg/kg	NA	<1.20	NA	<1.10	NA	<1.20	NA	NA	NA	<2.00	<2.00	<2.00	NA	<2.00	NA	NA	NA
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	850	2,600	2,600	NA	870	560	880	930 [1,170]
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<60.0	<60.0	<60.0	NA	<60.0	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	200	170	NA	140	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	46	46.0 P	NA	12.0 P	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	40	40	NA	14	3.61	12.3	12.6 [13.1]
Parameters																		
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.29	0.514	<0.100 [<0.100]
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.3	97.6	125 [114]
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	<40.0	990	<40.0	15	<40.0	<12.0	<40.0	<40.0	<40.0	1,300	150	460	<40.0	19,000	NA	NA	NA
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<1.00 [<0.0500]
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<1.00 [<0.250]
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	0.113	3.12 [3.33]
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	0.0293	0.845 [0.978]
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000840	<0.00340	<0.00290	NA	<0.00270	<0.0100	<0.0100	<0.200 [<0.250]
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	5.53	13.2 [12.1]
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	7.64	12.1 [10.9]
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HLSF-SB-011	HLSF-SB-011	HLSF-SB-011
Sample Depth(ft):		25 - 30	25 - 30	30 - 35	30 - 35	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	10 - 11	20 - 21	30 - 32
Date Collected:	Units	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	11/16/06	11/16/06	11/16/06
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	NA	<0.0500	NA	<0.0500	NA	NA	NA	NA	NA	<0.0110	<0.0130	<0.0110	NA	<0.0100	<0.0500	<0.0500	<1.00 [<0.0500]
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	0.906 [<0.250]
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	1.51	3.47 [3.04]
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	0.311 [0.347]
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	0.738	<0.250 [1.27]
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	0.59	1.73 [1.40]
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<1.00 [<0.250]
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HLSF-SB-011	HLSF-SB-011	HLSF-SB-011
Sample Depth(ft):		25 - 30	25 - 30	30 - 35	30 - 35	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	10 - 11	20 - 21	30 - 32
Date Collected:	Units	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	11/16/06	11/16/06	11/16/06
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000480	<0.00200	<0.00160	NA	<0.00150	<0.0100	<0.0100	<0.200 [<0.250]
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	0.468 [<0.250]
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																		
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50.0	943	5,160 [4,170]
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	62.9	224 [257]
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
1,1,1-Trichloroethane	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00130	<0.00150	<0.00120	NA	0.0072	<0.0100	<0.0100	<0.200 [<0.0100]
1,1,2,2-TETRACHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00110	<0.00450	<0.00380	NA	<0.00350	<0.0100	<0.0100	<0.200 [<0.0100]
1,1,2-TRICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00390	<0.00450	<0.00380	NA	<0.00350	<0.0100	<0.0100	<0.200 [<0.0100]
1,1-DICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00310	<0.00360	<0.00300	NA	<0.00280	<0.0100	<0.0100	<0.200 [<0.0100]
1,1-DICHLOROETHYLENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00340	<0.00390	<0.00330	NA	<0.00310	<0.0100	<0.0100	<0.200 [<0.0100]
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<1.00 [<0.0500]
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000810	<0.00330	<0.00280	NA	<0.00260	<0.0100	<0.0100	<0.200 [<0.250]
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00270	<0.00320	<0.00270	NA	0.044	<0.0100	<0.0100	<0.200 [<0.0100]
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00490	<0.00570	<0.00480	NA	<0.00450	<0.0100	<0.0100	<0.200 [<0.0100]
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.500	<0.500	<10.0 [<0.500]
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
2-butanone	mg/kg	NA	<0.100	NA	<0.100	NA	NA	NA	NA	NA	<0.0110	<0.0130	<0.0110	NA	0.072	<0.0500	<0.0500	<1.00 [<0.0500]

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-SW300	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HCF-W100	HLSF-SB-011	HLSF-SB-011	HLSF-SB-011
Sample Depth(ft):		25 - 30	25 - 30	30 - 35	30 - 35	35 - 40	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	10 - 11	20 - 21	30 - 32
Date Collected:	Units	04/29/92	05/03/93	04/29/92	05/03/93	04/29/92	05/03/93	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	03/03/92	11/16/06	11/16/06	11/16/06
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	<0.00490	<0.00570	<0.00480	NA	<0.00450	<0.0500	<0.0500	<1.00 [<0.0500]
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	NA	<0.100	NA	<0.100	NA	NA	NA	NA	NA	0.0180 B	<0.0160	<0.0130	NA	0.0160 B	<0.100	<0.100	<2.00 [<0.100]
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00530	<0.00620	<0.00510	NA	<0.00480	<0.0100	<0.0100	<0.200 [<0.0100]
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.250	<0.250	<0.250 [<0.250]
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
BROMODICHLOROMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00240	<0.00280	<0.00240	NA	<0.00220	<0.0100	<0.0100	<0.200 [<0.0100]
BROMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00490	<0.00570	<0.00480	NA	<0.00450	<0.0500	<0.0500	<1.00 [<0.0500]
CARBON DISULFIDE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00160	<0.00180	<0.00150	NA	<0.00140	<0.0100	<0.0100	<0.200 [<0.0100]
CARBON TETRACHLORIDE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00130	<0.00150	<0.00120	NA	<0.00120	<0.0100	<0.0100	<0.200 [<0.0100]
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00310	<0.00360	<0.00300	NA	<0.00280	<0.0100	<0.0100	<0.200 [<0.0100]
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.000690	<0.00280	<0.00240	NA	<0.00220	<0.0100	<0.0100	<0.200 [<0.0100]
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
CHLORODIBROMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.000810	<0.00330	0.0028	NA	<0.00260	<0.0100	<0.0100	<0.200 [<0.0100]
CHLOROETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	<0.00700	<0.00820	<0.00690	NA	<0.00640	<0.0100	<0.0100	<0.200 [<0.0100]
CHLOROFORM	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00270	<0.00320	<0.00270	NA	<0.00250	<0.0100	<0.0100	<0.200 [<0.0100]
CHLOROMETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	<0.00200	0.0026	<0.00200	NA	<0.00180	<0.0100	<0.0100	<0.200 [<0.0100]
cis-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00260	<0.00310	<0.00260	NA	<0.00240	<0.0100	<0.0100	<0.200 [<0.0100]
cis-1,3-Dichloropropene	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00340	<0.00390	<0.00330	NA	<0.00310	<0.0100	<0.0100	<0.200 [<0.0100]
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
DICHLOROMETHANE	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	<0.00330	<0.00380	<0.00320	NA	0.0059	<0.0500	<0.0500	<1.00 [<0.0500]
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	NA	0.0052	NA	<0.00500	NA	NA	NA	NA	NA	<0.000960	<0.00390	0.007	NA	0.4	<0.0100	<0.0100	<0.200 [<0.0100]
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0500	<1.00 [<0.0500]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<4.00 [<0.200]
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	0.0432	<0.200 [0.0547]
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00160	0.0075	0.0083	NA	0.47	<0.0100	0.0116	<0.200 [0.114]
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	NA	<0.0500	NA	<0.0500	NA	NA	NA	NA	NA	<0.00840	<0.00980	<0.00820	NA	<0.00770	<0.0500	<0.0500	<1.00 [<0.0500]
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00420	<0.00490	<0.00410	NA	<0.00390	<0.0100	<0.0100	<0.200 [<0.0100]
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	0.388	<1.00 [0.631]
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	0.158	0.277 [0.293]
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	0.037	<0.200 [0.0573]
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0091	0.018	0.024	NA	1.20 E	<0.0100	<0.0100	<0.200 [0.0113]
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	0.121	0.282 [0.322]
STYRENE (MONOMER)	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.000930	<0.00380	<0.00320	NA	<0.00300	<0.0100	<0.0100	<0.200 [<0.0100]
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<4.00 [<0.200]
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.200 [<0.0100]
TETRACHLOROETHENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00560	<0.00660	<0.00550	NA	<0.00520	<0.0100	<0.0100	<0.200 [<0.0100]
trans-1,2-Dichloroethene	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00330	<0.00380	<0.00320	NA	<0.00300	<0.0100	<0.0100	<0.200 [<0.0100]
trans-1,3-Dichloropropene	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00140	<0.00160	<0.00130	NA	<0.00130	<0.0100	<0.0100	<0.200 [<0.0100]
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<2.00 [<0.100]
TRIBOMOMETHANE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00130	<0.00530	<0.00450	NA	<0.00420	<0.0100	<0.0100	<0.200 [<0.0100]
TRICHLOROETHYLENE	mg/kg	NA	<0.00500	NA	<0.00500	NA	NA	NA	NA	NA	<0.00810	<0.00940	<0.00790	NA	<0.00740	<0.0100	<0.0100	<0.200 [<0.0100]
VINYL ACETATE	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	<0.00490	<0.00570	<0.00480	NA	<0.00450	NA	NA	NA
Vinyl Chloride	mg/kg	NA	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	<0.00740	<0.00860	<0.00720	NA	<0.00680	<0.0100	<0.0100	<0.200 [<0.0100]
Xylenes	mg/kg	NA	0.024	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-011	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-020
Sample Depth(ft):		40 - 42	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 22	30 - 31	36 - 37	40 - 41	10 - 11
Date Collected:	Units	11/16/06	11/16/06	11/16/06	11/16/06	11/16/06	11/02/06	11/02/06	11/02/06	11/02/06	11/13/06	11/13/06	11/13/06	11/13/06	11/13/06	11/15/06
Metals																
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	2.48	2.82	5.39	2.3	<0.500	6.75	18.9	4.7	7.55	2.7	8.13 [13.0]	4.3	NA	4.67	1.97
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	5.21	<5.00	<5.00	<5.00	<5.00 [<5.00]	<5.00	NA	<5.00	<5.00
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	7.84	3.99	13.9	6.55	4.74	2.96	36.5	10.4	6.44	2.9	16.3 [26.3]	7.61	NA	8.21	2.75
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	mg/kg	600	650	378	470	384	357	611	513	454	567	816 [1,540]	920	NA	766	472
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	9.45	5.08	16.4	9.71	6.17	6.54	45	16.1	10.2	4.42	22.1 [46.7]	14.5	NA	14.2	3.9
Parameters																
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	<0.100	NA	NA	NA	NA	4.11	<0.100	<0.100	1.69	2.01	0.415 [<0.100]	0.156	NA	2	25.6
Phosphorus	mg/kg	113	61.1	105	119	80.8	13.8	207	135	88.4	43.8	173 [270]	168	NA	207	55.6
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																
1,2,3-TRICHLOROBENZENE	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
1,2,4-TRICHLOROBENZENE	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	<0.0500
1,2,4-TRIMETHYLBENZENE	mg/kg	6.7	<0.0100	<0.0100	<0.0100	1.26	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	1.62	<0.0100	<0.0100	<0.0100
1,2-BENZPHENANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
1,3,5-Trimethylbenzene	mg/kg	2.66	<0.0100	<0.0100	<0.0100	0.32	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	0.736	<0.0100	<0.0100	<0.0100
1,4-DICHLOROBENZENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0100
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
1-Methylnaphthalene	mg/kg	55.8	<0.250	<0.250	<0.250	8.77	<0.250	<0.250	<0.250	0.302	<0.250	9.10 [4.60]	17.2	NA	<0.250	<0.250
1-NAPHTHYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,4,5-TRICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,4,6-Trichlorophenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,4-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,4-DIMETHYLPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,4-DINITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,4-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,6-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2,6-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-CHLORONAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-CHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-Methyl pyridine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-METHYLNAPHTHALENE	mg/kg	71.3	<0.250	<0.250	<0.250	11.1	<0.250	<0.250	<0.250	<0.250	<0.250	0.698 [<0.250]	8.25	NA	<0.250	<0.250
2-Methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-011	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-020
Sample Depth(ft):		40 - 42	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 22	30 - 31	36 - 37	40 - 41	10 - 11
Date Collected:	Units	11/16/06	11/16/06	11/16/06	11/16/06	11/16/06	11/02/06	11/02/06	11/02/06	11/02/06	11/13/06	11/13/06	11/13/06	11/13/06	11/13/06	11/15/06
2-Naphthylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
2-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
3,3'-DICHLOROBENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
3-METHYLCHLORANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-Aminobiphenyl	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-Chloro-3-methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-CHLOROTOLUENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
a,a-Dimethylphenethylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Acenaphthene	mg/kg	3.1	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	0.400 [<0.250]	1.12	NA	<0.250	<0.250
ACENAPHTHYLENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Aniline	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
ANTHRACENE	mg/kg	10.6	<0.250	<0.250	<0.250	2	<0.250	<0.250	<0.250	<0.250	<0.250	2.63 [1.72]	6.16	NA	<0.250	<0.250
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Benzo(a)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Benzo(a)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Benzo(b)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Benzo(g,h,i)perylene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Benzo(k)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
BENZOIC ACID	mg/kg	<0.250	<0.250	0.41	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
BENZYL BUTYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
bis (2-chloroethoxy) methane	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
bis(2-Chloroethyl) ether	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	0.611	<0.0100	<0.0100	<0.0100	0.533	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	0.362	<0.0100	<0.0100	<0.0100
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
DIBENZ[A,J]ACRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
DIBENZOFURAN	mg/kg	<0.250	<0.250	<0.250	<0.250	0.994	<0.250	<0.250	<0.250	<0.250	<0.250	1.17 [0.776]	2.44	NA	<0.250	<0.250
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
DIMETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Di-n-butyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Di-n-octyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
DIPHENYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	0.578 [0.369]	1.63	NA	<0.250	<0.250
Diphenylhydrazine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
FLUORENE	mg/kg	6.38	<0.250	<0.250	<0.250	1.03	<0.250	<0.250	<0.250	<0.250	<0.250	1.03 [<0.250]	2.74	NA	<0.250	<0.250
HEXACHLORO-1,3-BUTADIENE	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.250]	<0.0500	<0.0500	<0.0500	<0.0500
HEXACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
HEXACHLOROETHANE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-011	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-020
Sample Depth(ft):		40 - 42	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 22	30 - 31	36 - 37	40 - 41	10 - 11
Date Collected:	Units	11/16/06	11/16/06	11/16/06	11/16/06	11/16/06	11/02/06	11/02/06	11/02/06	11/02/06	11/13/06	11/13/06	11/13/06	11/13/06	11/13/06	11/15/06
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
M-DICHLOROBENZENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0100
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
n-Nitrosodi-n-propylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PENTACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PENTACHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PHENACETIN	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PHENANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
PYRENE	mg/kg	1.42	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	0.682	NA	<0.250	<0.250
PYRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	10,800	<50.0	178	<50.0	3,180	<50.0	<50.0	1,040	<50.0	<50.0	953 [369]	9,800	3,360	<50.0	<50.0
GRO	mg/kg	386	<1.00	2.7	<1.00	171	<1.00	<1.00	23.3	1.6	<1.00	63.8 [42.5]	102	106	<1.00	<1.00
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,1,1-Trichloroethane	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,1,2-TRICHLOROETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,1-DICHLOROETHYLENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,1-Dichloropropene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,2,3-Trichloropropane	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
1,2-Dibromoethane	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,2-DICHLOROBENZENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.250]	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,3-DICHLOROPROPANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	<10.0	<0.500	<0.500	<0.500	<10.0	<0.500	<10.0	<10.0	<10.0	<0.500	<0.500 [<0.500]	<0.500	<0.500	<0.500	<0.500
2,2-DICHLOROPROPANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
2-butanone	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-011	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-013	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-015	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-019	HLSF-SB-020
Sample Depth(ft):		40 - 42	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10 - 11	20 - 22	30 - 31	36 - 37	40 - 41	10 - 11
Date Collected:	Units	11/16/06	11/16/06	11/16/06	11/16/06	11/16/06	11/02/06	11/02/06	11/02/06	11/02/06	11/13/06	11/13/06	11/13/06	11/13/06	11/13/06	11/15/06
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
2-CHLOROTOLUENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<2.00	<0.100	<0.100	<0.100	<2.00	<0.100	<2.00	<2.00	<2.00	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	0.244	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250 [<0.250]	<0.250	NA	<0.250	<0.250
BROMOBENZENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
BROMODICHLOROMETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
BROMOMETHANE	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
CARBON DISULFIDE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CARBON TETRACHLORIDE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CFC-11	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROBROMOMETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLORODIBROMOMETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROMETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,3-Dichloropropene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
DIBROMOMETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
DICHLOROMETHANE	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	0.647	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
Iodomethane	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<4.00	<0.200	<0.200	<0.200	<4.00	<0.200	<4.00	<4.00	<4.00	<0.200	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200
Isopropylbenzene	mg/kg	1.54	<0.0100	<0.0100	<0.0100	0.346	<0.0100	<0.200	<0.200	<0.200	<0.0100	0.124 [0.212]	0.0302	0.0247	<0.0100	<0.0100
m,p-Xylene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	0.0149	<0.0100	<0.0100	<0.0100
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<1.00	<0.0500	<0.0500	<0.0500	<1.00	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
MTBE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
NAPHTHALENE	mg/kg	6.24	<0.0500	<0.0500	<0.0500	2.56	<0.0500	<1.00	<1.00	<1.00	<0.0500	<0.0500 [0.685]	<0.0500	1.56	<0.0500	<0.0500
n-Butylbenzene	mg/kg	2.77	<0.0100	<0.0100	<0.0100	0.925	<0.0100	<0.200	<0.200	<0.200	<0.0100	0.347 [0.750]	0.367	0.763	<0.0100	<0.0100
n-Propylbenzene	mg/kg	1.39	<0.0100	<0.0100	<0.0100	0.555	<0.0100	<0.200	<0.200	<0.200	<0.0100	0.141 [0.252]	0.0261	0.0373	<0.0100	<0.0100
o-Xylene	mg/kg	0.367	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	0.0311	<0.0100	<0.0100	<0.0100
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	2.74	<0.0100	<0.0100	<0.0100	0.936	<0.0100	<0.200	<0.200	<0.200	<0.0100	0.316 [0.670]	0.554	0.466	<0.0100	<0.0100
STYRENE (MONOMER)	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
TERT-BUTYL ALCOHOL	mg/kg	<4.00	<0.200	<0.200	<0.200	<4.00	<0.200	<4.00	<4.00	<4.00	<0.200	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200
tert-Butylbenzene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
TETRACHLOROETHENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,2-Dichloroethene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
trans-1,3-Dichloropropene	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
TRANS-1,4-DICHLOROBUTENE	mg/kg	<2.00	<0.100	<0.100	<0.100	<2.00	<0.100	<2.00	<2.00	<2.00	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100
TRIBOMOMETHANE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
TRICHLOROETHYLENE	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	mg/kg	<0.200	<0.0100	<0.0100	<0.0100	<0.200	<0.0100	<0.200	<0.200	<0.200	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-020	HLSF-SB-020	HLSF-SB-020	HLSF-SB-021	HLSF-SB-021	HLSF-SB-021	HLSF-SB-021	HMW-10	HMW-10	HMW-10	HMW-10	HMW-10	HMW-10	HMW-13	HMW-13	HMW-13	HMW-13	HMW-13
Sample Depth(ft):		20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10	15	20	25	30	35	10	15	20	25	30
Date Collected:	Units	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	04/16/92	04/16/92	04/16/92	04/18/92	04/18/92	04/18/92	04/28/92	04/28/92	04/28/92	04/30/92	04/30/92
Metals																			
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	NA	NA	NA	NA	NA	NA	NA	1.1	<0.480	3.7	4.8	2.70 [3.50]	3	0.58	<0.430	1.1	0.92	1.3
BARIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	<93.0	<100	<100	110	88.0 [85.0]	120	<96.0	<110	<110	<95.0	51
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	<2.30	<2.50	<2.50	<0.500	<0.500 [0.580]	0.61	<2.40	<2.70	<2.70	<2.40	<0.490
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	5.39	8.59	3.67	2.82	14	9.6	4.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	11.9	17.5	10.2	3.91	27.6	18	11.8	<23.0	<0.100	<25.0	11	6.90 [6.90]	5.4	<24.0	<27.0	<27.0	<24.0	6.5
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.100	<0.100	<0.0700	<0.0800	<0.100 [<0.100]	<0.0700	<0.0600	<0.100	<0.100	<0.0700	<0.0800
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.540	<25.0	<0.500	<0.530	<0.480 [<0.560]	<0.530	<0.510	<0.430	<0.450	<0.470	<0.540
SILVER	mg/kg	NA	NA	NA	NA	NA	NA	NA	<4.70	<5.00	<5.10	<1.00	<0.990 [<1.10]	<1.00	<4.80	<5.50	<5.50	<4.80	<0.970
SODIUM	mg/kg	846	1,910	813	1,410	3,410	4,110	1,220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	16.4	28.2	12.9	4.96	41.8	32.5	16.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																			
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	7.37	3.17	3.96	14.2	13.8	44.9	6.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	99.3	245	175	71.8	220	284	148	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	NA	NA	NA	NA	NA	NA	NA	55	<0.480	<13.0	<12.0	<12.0 [<13.0]	<13.0	<10.0	1,800	1,800	<10.0	<10.0
SVOCs																			
1,2,3-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2,4-TRIMETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,3,5-Trimethylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DIMETHYLPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,4-DINITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
2,4-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2,6-DICHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-CHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
2-Methyl pyridine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<1.70	<2.00	<2.00	<2.00	<2.00
2-METHYLNAPHTHALENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-020	HLSF-SB-020	HLSF-SB-020	HLSF-SB-021	HLSF-SB-021	HLSF-SB-021	HLSF-SB-021	HMW-10	HMW-10	HMW-10	HMW-10	HMW-10	HMW-10	HMW-13	HMW-13	HMW-13	HMW-13	HMW-13
Sample Depth(ft):		20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10	15	20	25	30	35	10	15	20	25	30
Date Collected:	Units	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	04/16/92	04/16/92	04/16/92	04/18/92	04/18/92	04/18/92	04/28/92	04/28/92	04/28/92	04/30/92	04/30/92
2-Naphthylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3,3'-DICHLOROBENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.700	<0.700	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
3-METHYLCHLORANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-Chloro-3-methylphenol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.700	<0.700	<0.700	<0.700	<0.700 [<0.700]	<0.700	<0.700	<0.700	<0.700	<0.700	<0.700
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
4-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
4-NITROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACENAPHTHYLENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<1.70	<1.70	<1.70	<1.70	<1.70 [<1.70]	<1.70	<1.70	<1.70	<1.70	<1.70	<1.70
Benzo(a)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(a)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(b)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(g,h,i)perylene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Benzo(k)fluoranthene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BENZOIC ACID	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BENZYL ALCOHOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis (2-chloroethoxy) methane	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
bis(2-Chloroethyl) ether	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIBENZ[A,J]ACRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIMETHYL PHTHALATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-butyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Di-n-octyl phthalate	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
DIPHENYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
FLUORENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	0.88	1.1	<0.300	<0.300
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
HEXACHLOROETHANE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Sample Depth(ft): / Date Collected:	Units	HLSF-SB-020 20 - 21 11/15/06	HLSF-SB-020 30 - 31 11/15/06	HLSF-SB-020 40 - 41 11/15/06	HLSF-SB-021 10 - 11 11/15/06	HLSF-SB-021 20 - 21 11/15/06	HLSF-SB-021 30 - 31 11/15/06	HLSF-SB-021 40 - 41 11/15/06	HMW-10 10 04/16/92	HMW-10 15 04/16/92	HMW-10 20 04/16/92	HMW-10 25 04/18/92	HMW-10 30 04/18/92	HMW-10 35 04/18/92	HMW-13 10 04/28/92	HMW-13 15 04/28/92	HMW-13 20 04/28/92	HMW-13 25 04/30/92	HMW-13 30 04/30/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.330	<0.330	<0.330	<0.330	<0.330 [<0.330]	<0.330	<0.330	<0.330	<0.330	<0.330	<0.330
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<2.00	<2.00	<2.00	<2.00	<2.00 [<2.00]	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
PHENACETIN	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	2	3.4	<0.300	<0.300
PHENOL	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
PYRIDINE	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																			
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	55	<13.0	<13.0	<12.0	<12.0 [<13.0]	<13.0	<10.0	1,800	1,800	<10.0	<10.0
VOCs																			
1,1,1,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	0.0098	<0.00500	<0.00500	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,1-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
1,4-Dioxane	mg/kg	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HLSF-SB-020	HLSF-SB-020	HLSF-SB-020	HLSF-SB-021	HLSF-SB-021	HLSF-SB-021	HLSF-SB-021	HMW-10	HMW-10	HMW-10	HMW-10	HMW-10	HMW-10	HMW-13	HMW-13	HMW-13	HMW-13	HMW-13
Sample Depth(ft):		20 - 21	30 - 31	40 - 41	10 - 11	20 - 21	30 - 31	40 - 41	10	15	20	25	30	35	10	15	20	25	30
Date Collected:	Units	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	11/15/06	04/16/92	04/16/92	04/16/92	04/18/92	04/18/92	04/18/92	04/28/92	04/28/92	04/28/92	04/30/92	04/30/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2-CHLOROTOLUENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200 [<0.200]	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
ACRYLONITRILE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	0.0061	<0.00500	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
BROMOBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CFC-11	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CFC-12	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CHLOROFORM	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0130	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBROMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
DICHLOROMETHANE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ETHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Iodomethane	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200 [<0.0200]	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
MTBE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.300	<0.300	<0.300	<0.300	<0.300 [<0.300]	<0.300	<0.300	1.4	2	<0.300	<0.300
n-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
VINYL ACETATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Vinyl Chloride	mg/kg	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	0.17	0.38	<0.00500	<0.00500

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-13	N100	N100	N100	N100	N100	N100	N100	N100	N200	N200	N200	N200	N200	N200	N200	N200	SE-100	SE-100	SE-100	SE-100	SE-100
Sample Depth(ft):		35	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	4.5 - 6	9.5 - 11	14.5 - 16	19.5 - 21	24.5 - 26
Date Collected:	Units	04/30/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	01/24/92	01/24/92	01/24/92	01/24/92	01/24/92
Metals																							
ALUMINUM	mg/kg	NA	NA	NA	NA	10,000	16,000	16,000	5,300	8,900	NA	NA	NA	NA	NA	NA	3,080	NA	NA	NA	4,900 D	17,000	9,400
ANTIMONY	mg/kg	NA	NA	NA	NA	24.0	<12.0	<12.0	<12.0	<12.0	NA	NA	NA	NA	NA	NA	<6.00	NA	NA	NA	<24.0 D	<12.0	<12.0
ARSENIC	mg/kg	1.1	NA	NA	NA	3.9	8	4.6	3	3.1	NA	NA	NA	NA	NA	NA	1.4	NA	NA	NA	<64.0 D	<32.0	<32.0
BARIUM	mg/kg	27	NA	NA	NA	190	50	<40.0	<40.0	53	NA	NA	NA	NA	NA	NA	7.8	NA	NA	NA	<80.0 D	87	61
BERYLLIUM	mg/kg	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	0.28	NA	NA	NA	<2.00 D	<1.00	<1.00
CADMIUM	mg/kg	<0.510	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	<0.500	NA	NA	NA	<2.00 D	<1.00	<1.00
CALCIUM METAL	mg/kg	NA	NA	NA	NA	110,000	16,000	35,000	1,200	17,000	NA	NA	NA	NA	NA	NA	849	NA	NA	NA	150,000 D	94,000	57,000
Chromium	mg/kg	NA	NA	NA	NA	7	12	11	4	9	NA	NA	NA	NA	NA	NA	3.7	NA	NA	NA	<4.00 D	11	8
COBALT	mg/kg	NA	NA	NA	NA	<10.0	<10.0	<10.0	<10.0	<10.0	NA	NA	NA	NA	NA	NA	2.3	NA	NA	NA	<20.0 D	<10.0	<10.0
COPPER	mg/kg	NA	NA	NA	NA	<5.00	14	14	<5.00	11	NA	NA	NA	NA	NA	NA	3.1	NA	NA	NA	<10.0 D	8	<5.00
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	6,900	15,000	12,000	7,900	11,000	NA	NA	NA	NA	NA	NA	6,220	NA	NA	NA	4,100 D	14,000	8,500
LEAD	mg/kg	<5.10	NA	NA	NA	22	5.4	6	5.4	7.9	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	<44.0 D	32.0 S	<22.0 S
MAGNESIUM	mg/kg	NA	NA	NA	NA	4,500	11,000	5,300	2,100	3,500	NA	NA	NA	NA	NA	NA	1,860	NA	NA	NA	6,200 D	6,200	3,800
MANGANESE	mg/kg	NA	NA	NA	NA	83	180	100	68	81	NA	NA	NA	NA	NA	NA	61.8	NA	NA	NA	44.0 D	91	160
MERCURY	mg/kg	<0.0800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA	NA	NA
MOLYBDENUM	mg/kg	NA	NA	NA	NA	<13.0	<13.0	<13.0	<13.0	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<26.0 D	<13.0	<13.0
NICKEL	mg/kg	NA	NA	NA	NA	<8.00	9	<8.00	<8.00	<8.00	NA	NA	NA	NA	NA	NA	4.1	NA	NA	NA	<16.0 D	<8.00	<8.00
POTASSIUM	mg/kg	NA	NA	NA	NA	2,000	3,400	3,600	1,000	1,700	NA	NA	NA	NA	NA	NA	898	NA	NA	NA	<2,000 D	3,600	2,700
SELENIUM	mg/kg	<0.440	NA	NA	NA	<1.00	2	2	<1.00	<1.00	NA	NA	NA	NA	NA	NA	<0.500	NA	NA	NA	<120 D	<60.0	<60.0
SILVER	mg/kg	<1.00	NA	NA	NA	<2.00 S	<2.00 S	<2.00 S	<2.00 S	<2.00 S	NA	NA	NA	NA	NA	NA	<1.00	NA	NA	NA	<4.00 D	<2.00	<2.00
SODIUM	mg/kg	NA	NA	NA	NA	1,000	1,500	1,800	1,200	1,900	NA	NA	NA	NA	NA	NA	1,480	NA	NA	NA	<2,000 D	1,600	1,200
THALLIUM	mg/kg	NA	NA	NA	NA	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	<0.500	NA	NA	NA	<120 D	<60.0	<60.0
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	97.0 S	160 S	150 S	210 S	120 S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 D	180	210
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	34	44	30	18	21	NA	NA	NA	NA	NA	NA	13.6	NA	NA	NA	<20.0 D	37	18
ZINC	mg/kg	NA	NA	NA	NA	16	30	24	16	24	NA	NA	NA	NA	NA	NA	14.5	NA	NA	NA	<8.00 D	32	19
Parameters																							
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42	210	210
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.7	14	9.9
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	34	<40.0	<40.0	<40.0	1,400	9,300	8,900	64	850	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	117	2,300	250
SVOCs																							
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	<0.00840	<0.00840	<0.00840	<0.00840	<0.00840	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000840 H	<0.00110	<0.000840 H
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-13	N100	N100	N100	N100	N100	N100	N100	N100	N200	N200	N200	N200	N200	N200	N200	N200	SE-100	SE-100	SE-100	SE-100	SE-100
Sample Depth(ft):		35	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	4.5 - 6	9.5 - 11	14.5 - 16	19.5 - 21	24.5 - 26
Date Collected:	Units	04/30/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	01/24/92	01/24/92	01/24/92	01/24/92	01/24/92
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	<0.700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	NA	NA	NA	<0.0320	<0.0320	<0.0320	<0.0320	<0.0320	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.00320 H	<0.00420	<0.00320 H
4-NITROPHENOL	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	<1.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-13	N100	N100	N100	N100	N100	N100	N100	N100	N200	N200	N200	N200	N200	N200	N200	N200	SE-100	SE-100	SE-100	SE-100	SE-100
Sample Depth(ft):		35	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	4.5 - 6	9.5 - 11	14.5 - 16	19.5 - 21	24.5 - 26
Date Collected:	Units	04/30/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	01/24/92	01/24/92	01/24/92	01/24/92	01/24/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	<0.00480	<0.00480	<0.00480	<0.00480	<0.00480	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000480 H	<0.000630	<0.000480 H
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	<0.330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																							
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	34	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																							
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	NA	NA	NA	<0.00360	0.37	1.3	<0.00360	<0.00360	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	0.0120 H	0.00073	<0.000360 H
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	NA	NA	NA	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00110 H	0.0082	<0.00110 H
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	NA	NA	NA	<0.0110	<0.0110	<0.0110	<0.0110	<0.0110	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00110 H	<0.00150	<0.00110 H
1,1-DICHLOROETHANE	mg/kg	<0.00500	NA	NA	NA	<0.00870	<0.00870	<0.00870	<0.00870	<0.00870	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000870 H	<0.00120	<0.000870 H
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	NA	NA	NA	<0.00960	0.01	<0.00960	<0.00960	<0.00960	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000960 H	<0.00130	<0.000960 H
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.300	NA	NA	NA	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000810 H	<0.00110	<0.000810 H
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	NA	NA	NA	<0.00780	<0.0140	<0.00780	<0.00780	<0.00780	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000780 H	<0.00100	<0.000780 H
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00500	NA	NA	NA	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00140 H	<0.00190	<0.00140 H
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	NA	NA	NA	0.23	0.15	0.14	0.1	0.23	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.00310 H	0.0095	<0.00310 H

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		HMW-13	N100	N100	N100	N100	N100	N100	N100	N100	N200	N200	N200	N200	N200	N200	N200	N200	SE-100	SE-100	SE-100	SE-100	SE-100
Sample Depth(ft):		35	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	4.5 - 6	9.5 - 11	14.5 - 16	19.5 - 21	24.5 - 26
Date Collected:	Units	04/30/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/22/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	06/23/92	01/24/92	01/24/92	01/24/92	01/24/92	01/24/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	NA	NA	NA	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00140 H	<0.00190	<0.00140 H
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	NA	NA	NA	<0.0390	<0.0390	<0.0390	<0.0390	<0.0390	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	0.0150 H	0.025	0.0130 H
ACROLEIN	mg/kg	<0.200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	<0.100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	NA	NA	NA	<0.0150	0.024	0.072	<0.0150	<0.0150	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	0.00510 H	0.025	0.00820 H
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	NA	NA	NA	NA	<0.00690	<0.00690	<0.00690	<0.00690	<0.00690	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000690 H	<0.000910	<0.000690 H
BROMOMETHANE	mg/kg	<0.00500	NA	NA	NA	0.02	0.028	<0.0140	<0.0140	<0.0140	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.00140 H	<0.00190	<0.00140 H
CARBON DISULFIDE	mg/kg	<0.00500	NA	NA	NA	<0.00450	<0.00450	<0.00450	<0.00450	<0.00450	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000450 H	<0.000590	<0.000450 H
CARBON TETRACHLORIDE	mg/kg	<0.00500	NA	NA	NA	<0.00360	<0.00360	<0.00360	<0.00360	<0.00360	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000360 H	<0.000480	<0.000360 H
CFC-11	mg/kg	<0.0100	NA	NA	NA	<0.00870	<0.00870	<0.00870	<0.00870	<0.00870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000870 H	<0.00120	<0.000870 H
CFC-12	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	NA	NA	NA	<0.00690	<0.00690	<0.00690	<0.00690	<0.00690	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000690 H	<0.000910	<0.000690 H
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	NA	NA	NA	<0.00810	<0.00810	<0.00810	<0.00810	<0.00810	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000810 H	<0.00110	<0.000810 H
CHLOROETHANE	mg/kg	<0.0100	NA	NA	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	0.00770 H	<0.00260	0.00700 H
CHLOROFORM	mg/kg	<0.00500	NA	NA	NA	<0.00780	<0.00780	<0.00780	<0.00780	<0.00780	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000780 H	<0.00100	<0.000780 H
CHLOROMETHANE	mg/kg	<0.0100	NA	NA	NA	<0.00570	0.046	<0.00570	<0.00570	<0.00570	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000570 H	<0.000750	<0.000570 H
cis-1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	<0.00750	<0.00750	<0.00750	<0.00750	<0.00750	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000750 H	<0.000990	<0.000750 H
cis-1,3-Dichloropropene	mg/kg	<0.00500	NA	NA	NA	<0.00960	<0.00960	<0.00960	<0.00960	<0.00960	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000960 H	<0.00130	<0.000960 H
DIBROMOMETHANE	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.00500	NA	NA	NA	<0.00930	<0.00930	<0.00930	<0.00930	<0.00930	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.000930 H	<0.00120	<0.000930 H
ETHANOL	mg/kg	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	NA	NA	NA	<0.00960	0.81	2	<0.00960	<0.00960	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000960 H	<0.00130	<0.000960 H
Iodomethane	mg/kg	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	0.073	1.8	3.7	<0.0160	<0.0160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00160 H	0.003	0.00390 H
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	NA	NA	NA	<0.0240	<0.0240	<0.0240	<0.0240	<0.0240	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00240 H	<0.00320	<0.00240 H
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	NA	NA	NA	<0.0120	0.021	0.036	<0.0120	<0.0120	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00120 H	<0.00160	<0.00120 H
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	<0.300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	0.1	1.4	1.8	0.0088	<0.00810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00640 H	0.054	0.0120 H
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	NA	NA	NA	<0.00930	<0.00930	<0.00930	<0.00930	<0.00930	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000930 H	<0.00120	<0.000930 H
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	NA	NA	NA	<0.0160	0.039	<0.0160	<0.0160	<0.0160	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00160 H	<0.00210	<0.00160 H
trans-1,2-Dichloroethene	mg/kg	<0.00500	NA	NA	NA	<0.00930	<0.00930	<0.00930	<0.00930	<0.00930	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000930 H	<0.00120	<0.000930 H
trans-1,3-Dichloropropene	mg/kg	<0.00500	NA	NA	NA	<0.00390	<0.00390	<0.00390	<0.00390	<0.00390	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.000390 H	<0.000510	<0.000390 H
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	NA	NA	NA	NA	<0.0130	<0.0130	<0.0130	<0.0130	<0.0130	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00130 H	<0.00170	<0.00130 H
TRICHLOROETHYLENE	mg/kg	<0.00500	NA	NA	NA	<0.0230	<0.0230	<0.0230	<0.0230	<0.0230	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00230 H	<0.00300	<0.00230 H
VINYL ACETATE	mg/kg	<0.0100	NA	NA	NA	<0.0140	<0.0140	<0.0140	<0.0140	<0.0140	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.00140 H	<0.00190	<0.00140 H
Vinyl Chloride	mg/kg	<0.0100	NA	NA	NA	<0.0210	<0.0210	<0.0210	<0.0210	<0.0210	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.00210 H	<0.00280	<0.00210 H
Xylenes	mg/kg	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		SE-100	SE-100	SE-100	SW100	SW100	SW100	SW200	SW200	SW200	SW200	SW200	SW200	SW200	SW200	W100	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300
Sample Depth(ft):		29.5 - 31	34.5 - 36	39.5 - 41	0 - 5	5 - 10	10 - 15	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20
Date Collected:	Units	01/24/92	01/24/92	01/24/92	03/23/92	03/23/92	03/23/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	03/03/92	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92
Metals																							
ALUMINUM	mg/kg	22,000 S	NA	27,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	<12.0	NA	<12.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	<32.0	NA	<32.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.610	NA	2.1	NA	4.7	NA
BARIUM	mg/kg	100	NA	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<91.0	NA	<100	NA	45	NA
BERYLLIUM	mg/kg	<1.00	NA	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<1.00	NA	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.30	NA	<2.50	NA	<0.870	NA
CALCIUM METAL	mg/kg	23,000	NA	26,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	17	NA	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.50	NA	<5.00	NA	9.6	NA
COBALT	mg/kg	<10.0	NA	<10.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	9.2	NA	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	20,000	NA	19,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	39.0 S	NA	50.0 S	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.610	NA	1.2	NA	5.3	NA
MAGNESIUM	mg/kg	8,200	NA	9,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	120	NA	440	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0240	NA	<0.0200	NA	<0.0270	NA
MOLYBDENUM	mg/kg	<13.0	NA	<13.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	11	NA	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	4,800	NA	6,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<60.0	NA	<60.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.610	NA	<0.590	NA	<0.550	NA
SILVER	mg/kg	<2.00	NA	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.50	NA	<5.00	NA	<1.70	NA
SODIUM	mg/kg	2,100	NA	3,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	<60.0	NA	<60.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	210	NA	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	48	NA	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	43	NA	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters																							
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	160	NA	880	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	14	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	160	<40.0	78	<40.0	<40.0	42	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<13.0	<40.0	1,300	<40.0	1,500	<40.0
SVOCs																							
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	<0.000840 H	NA	<0.000840 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		SE-100	SE-100	SE-100	SW100	SW100	SW100	SW200	SW200	SW200	SW200	SW200	SW200	SW200	SW200	W100	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300
Sample Depth(ft):		29.5 - 31	34.5 - 36	39.5 - 41	0 - 5	5 - 10	10 - 15	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20
Date Collected:	Units	01/24/92	01/24/92	01/24/92	03/23/92	03/23/92	03/23/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	03/03/92	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.00320 H	NA	<0.00320 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		SE-100	SE-100	SE-100	SW100	SW100	SW100	SW200	SW200	SW200	SW200	SW200	SW200	SW200	SW200	W100	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300
Sample Depth(ft):		29.5 - 31	34.5 - 36	39.5 - 41	0 - 5	5 - 10	10 - 15	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20
Date Collected:	Units	01/24/92	01/24/92	01/24/92	03/23/92	03/23/92	03/23/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	03/03/92	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	<0.000480 H	NA	<0.000480 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs																							
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																							
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	0.00200 H	NA	<0.000360 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00110 H	NA	<0.00110 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1,2-TRICHLOROETHANE	mg/kg	<0.00110 H	NA	<0.00110 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1-DICHLOROETHANE	mg/kg	<0.000870 H	NA	<0.000870 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1-DICHLOROETHYLENE	mg/kg	<0.000960 H	NA	<0.000960 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	<0.000810 H	NA	<0.000810 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.000780 H	NA	<0.000780 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00140 H	NA	<0.00140 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.00310 H	NA	<0.00310 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID:		SE-100	SE-100	SE-100	SW100	SW100	SW100	SW200	SW200	SW200	SW200	SW200	SW200	SW200	SW200	W100	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300	WSW-300
Sample Depth(ft):		29.5 - 31	34.5 - 36	39.5 - 41	0 - 5	5 - 10	10 - 15	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	0 - 5	0 - 5	0 - 5	5 - 10	5 - 10	10 - 15	10 - 15	15 - 20
Date Collected:	Units	01/24/92	01/24/92	01/24/92	03/23/92	03/23/92	03/23/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	04/29/92	03/03/92	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92	04/29/93	04/28/92
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.00140 H	NA	<0.00140 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	0.0100 H	NA	0.0190 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	<0.100	NA	<0.100	NA
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	0.00600 H	NA	<0.00150 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.000690 H	NA	<0.000690 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
BROMOMETHANE	mg/kg	<0.00140 H	NA	<0.00140 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CARBON DISULFIDE	mg/kg	<0.000450 H	NA	<0.000450 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CARBON TETRACHLORIDE	mg/kg	<0.000360 H	NA	<0.000360 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CFC-11	mg/kg	<0.000870 H	NA	<0.000870 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.000690 H	NA	<0.000690 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.000810 H	NA	<0.000810 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CHLOROETHANE	mg/kg	<0.00200 H	NA	<0.00200 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
CHLOROFORM	mg/kg	<0.000780 H	NA	<0.000780 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
CHLOROMETHANE	mg/kg	<0.000570 H	NA	<0.000570 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
cis-1,2-Dichloroethene	mg/kg	<0.000750 H	NA	<0.000750 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
cis-1,3-Dichloropropene	mg/kg	<0.000960 H	NA	<0.000960 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.000930 H	NA	<0.000930 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.000960 H	NA	<0.000960 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	0.00570 H	NA	<0.00160 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.00240 H	NA	<0.00240 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	<0.0500	NA	<0.0500	NA
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00120 H	NA	<0.00120 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	0.0160 H	NA	0.00850 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.000930 H	NA	<0.000930 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00160 H	NA	<0.00160 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
trans-1,2-Dichloroethene	mg/kg	<0.000930 H	NA	<0.000930 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
trans-1,3-Dichloropropene	mg/kg	<0.000390 H	NA	<0.000390 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00130 H	NA	<0.00130 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
TRICHLOROETHYLENE	mg/kg	<0.00230 H	NA	<0.00230 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	<0.00500	NA
VINYL ACETATE	mg/kg	<0.00140 H	NA	<0.00140 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
Vinyl Chloride	mg/kg	<0.00210 H	NA	<0.00210 H	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
Xylenes	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500	NA	0.0086	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	WSW-300 15 - 20 04/29/93	WSW-300 20 - 25 04/28/92	WSW-300 20 - 25 04/29/93	WSW-300 25 - 30 04/28/92	WSW-300 25 - 30 04/29/93	WSW-300 30 - 35 04/28/92	WSW-300 30 - 35 04/29/93	WSW-300 35 - 40 04/28/92	WSW-300 35 - 40 04/29/93
Metals										
ALUMINUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/kg	1	NA	1.1	NA	3.4	NA	5	NA	5
BARIUM	mg/kg	27	NA	63	NA	51	NA	120	NA	100
BERYLLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/kg	<0.440	NA	<0.420	NA	<0.380	NA	<0.450	NA	<0.440
CALCIUM METAL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	2.1	NA	2.5	NA	5.7	NA	8.6	NA	7
COBALT	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexavalent Chromium	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/kg	2.3	NA	2.5	NA	4.8	NA	7.7	NA	8
MAGNESIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/kg	<0.0200	NA	<0.0260	NA	<0.0220	NA	<0.0200	NA	<0.0230
MOLYBDENUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/kg	<0.590	NA	<0.450	NA	<0.550	NA	<0.600	NA	<0.620
SILVER	mg/kg	<0.880	NA	<0.840	NA	<0.760	NA	<0.890	NA	<0.880
SODIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TITANIUM METAL POWDER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Cyanide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parameters										
% Solids	%	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride (CL)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate + Nitrite	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	mg/kg	15	<40.0	28,000	<40.0	<12.0	<40.0	<12.0	<40.0	<13.0
SVOCs										
1,2,3-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-NAPHTHOQUINONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Chloronaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-ACETYLAMINOFLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	WSW-300 15 - 20 04/29/93	WSW-300 20 - 25 04/28/92	WSW-300 20 - 25 04/29/93	WSW-300 25 - 30 04/28/92	WSW-300 25 - 30 04/29/93	WSW-300 30 - 35 04/28/92	WSW-300 30 - 35 04/29/93	WSW-300 35 - 40 04/28/92	WSW-300 35 - 40 04/29/93
2-Naphthylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/kg	<0.0500	NA	<0.250	NA	<0.0500	NA	<0.0500	NA	<0.0500
4-NITROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROQUINOLINE-N-OXIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
5-NITRO-O-TOLUIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARAMITE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZOIC ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORDECONE (KEPONE)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZILATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYGON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYMENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIALLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FAMPHUR	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	WSW-300 15 - 20 04/29/93	WSW-300 20 - 25 04/28/92	WSW-300 20 - 25 04/29/93	WSW-300 25 - 30 04/28/92	WSW-300 25 - 30 04/29/93	WSW-300 30 - 35 04/28/92	WSW-300 30 - 35 04/29/93	WSW-300 35 - 40 04/28/92	WSW-300 35 - 40 04/29/93
HEXACHLOROPHENE (HCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROPROPENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISODRIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOSAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Cresol	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHAPYRILENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine & Diphenylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosomethyl-ethylamine	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOMORPHOLINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O,O-TRIETHYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Parathion	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENACETIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHORATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-NITROANILINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRIDINE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAFROLE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFOTEP	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs										
>C10-C28	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs										
1,1,1,2-TETRACHLOROETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1,2,2-TETRACHLOROETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1,2-TRICHLOROETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-DICHLOROETHYLENE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,1-Dichloropropene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene/1,3-Dichlorobenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,2-Dichloroethene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
1,3-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4 Dichloro-2-butene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-butanone	mg/kg	<0.100	NA	<0.500	NA	<0.100	NA	<0.100	NA	<0.100

Table E.19.Attachment 3
Soil Risk Assessment Dataset
Total Soil Depth Interval
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: Sample Depth(ft): Date Collected:	Units	WSW-300 15 - 20 04/29/93	WSW-300 20 - 25 04/28/92	WSW-300 20 - 25 04/29/93	WSW-300 25 - 30 04/28/92	WSW-300 25 - 30 04/29/93	WSW-300 30 - 35 04/28/92	WSW-300 30 - 35 04/29/93	WSW-300 35 - 40 04/28/92	WSW-300 35 - 40 04/29/93
2-CHLOR-1,3-BUTADIENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/kg	<0.0100	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0100
2-CHLOROTOLUENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYL-1-PROPANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	mg/kg	<0.100	NA	<0.500	NA	<0.100	NA	<0.100	NA	<0.100
ACROLEIN	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ally chloride	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
BIS(2-CHLOROISOPROPYL)ETHER	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMOBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
BROMOMETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
CARBON DISULFIDE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
CARBON TETRACHLORIDE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
CFC-11	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CFC-12	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORINATED FLUOROCARBON (FREON 113)	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROETHANE	mg/kg	<0.0100	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0100
CHLOROFORM	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
CHLOROMETHANE	mg/kg	<0.0100	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0100
cis-1,2-Dichloroethene	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
cis-1,3-Dichloropropene	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
DIBROMOMETHANE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROMETHANE	mg/kg	<0.0100	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0100
ETHANOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	mg/kg	<0.00500	NA	0.21	NA	<0.00500	NA	<0.00500	NA	<0.00500
Iodomethane	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
M-DINITROBENZENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL METHACRYLATE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/kg	<0.0500	NA	<0.250	NA	<0.0500	NA	<0.0500	NA	<0.0500
METHYLACRYLONITRILE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHYLBENZENE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
MTBE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionitrile	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE (MONOMER)	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
TERT-BUTYL ALCOHOL	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
trans-1,2-Dichloroethene	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
trans-1,3-Dichloropropene	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
TRANS-1,4-DICHLOROBUTENE	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRIBOMOMETHANE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
TRICHLOROETHYLENE	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500
VINYL ACETATE	mg/kg	<0.0100	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0100
Vinyl Chloride	mg/kg	<0.0100	NA	<0.0500	NA	<0.0100	NA	<0.0100	NA	<0.0100
Xylenes	mg/kg	<0.00500	NA	<0.0250	NA	<0.00500	NA	<0.00500	NA	<0.00500

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	DRW-01 03/04/04	DRW-01 08/17/04	DRW-02 03/05/04	DRW-02 08/18/04	DRW-02 04/21/08	DRW-02 09/04/08	DRW-03 03/03/04	DRW-03 08/12/04	DRW-04 01/31/04	DRW-04 03/05/04	DRW-04 08/12/04	DRW-04 05/17/05
Explosives																	
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500
2-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	0.0124	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
4-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
RDX	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	0.234	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
Metals																	
ALUMINUM	mg/L	<0.0300	<0.0300	NA	NA	0.112	<0.100	49.6	0.105	NA	NA	<0.100 [<0.100]	<0.100 [<0.100]	NA	<0.100	<0.100	<0.0300
ANTIMONY	mg/L	NA	NA	NA	<0.0500	NA	NA	NA	NA	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA
ARSENIC	mg/L	<0.0100	<0.00500	NA	<0.00500	0.119	<0.00500	<0.0100	<0.00500	<0.00500	<0.0100	0.172 [0.359]	0.364 [0.227]	NA	0.061	<0.00500	<0.0100
BARIUM	mg/L	0.014	<0.0100	NA	0.02	<0.100	0.029	0.397	0.042	0.044	0.025	<0.100 [<0.100]	0.0870 [0.0950]	NA	<0.100	<0.0100	0.019
BERYLLIUM	mg/L	<0.00250	<0.00250	NA	<0.00250	0.005	<0.00250	<0.00250	<0.00250	<0.00200	<0.00200	0.00500 [0.00500]	<0.00250 [<0.00250]	NA	<0.00250	<0.00250	0.006
BORON	mg/L	6.35	7.68	NA	NA	8.24	6.7	8.51	7.4	NA	NA	7.58 [8.73]	7.80 [7.42]	NA	8.84	9.61	6.61
CADMIUM	mg/L	<0.00100	<0.00100	NA	<0.00200	<0.00500	<0.00100	0.005	<0.00100	<0.00100	<0.00200	<0.00500 [<0.00500]	<0.00100 [<0.00100]	NA	<0.00500	<0.00100	<0.00100
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	0.041	0.08	NA	0.014	0.07	<0.00500	0.428	0.015	0.217	0.166	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	<0.0100	0.008	0.039
COBALT	mg/L	<0.0200	<0.00500	NA	<0.00500	0.035	0.019	0.058	<0.00500	<0.00200	<0.00200	0.0210 [0.0360]	0.0120 [0.0130]	NA	0.042	<0.00500	0.039
COPPER	mg/L	0.019	<0.00500	NA	<0.00500	0.028	<0.00500	0.075	<0.00500	<0.00500	<0.00500	0.0130 [0.0150]	0.00500 [<0.00500]	NA	0.018	<0.00500	0.059
Hexavalent Chromium	mg/L	<0.0100	<0.0100	NA	NA	0.038	<0.0100	<0.0100	<0.0100	NA	NA	0.0260 [0.0370]	0.0530 [0.0637]	NA	<0.0100	<0.0100	<0.0100
Iron	mg/L	1.06	0.061	NA	NA	2.54	2.04	63.1	0.194	NA	NA	0.302 [0.276]	0.232 [0.170]	NA	0.57	0.599	1.52
LEAD	mg/L	<0.00500	<0.00500	NA	<0.0100	<0.0100	<0.0100	0.039	<0.0100	<0.00500	<0.00500	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100	<0.0100	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/L	0.508	0.241	NA	NA	0.933	1.25	0.61	0.136	NA	NA	0.274 [0.414]	0.544 [0.515]	NA	0.678	0.903	0.924
MERCURY	mg/L	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	NA	0.0003	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.064	<0.0500	NA	NA	0.085	<0.0500	0.471	0.142	NA	NA	0.657 [0.852]	0.374 [0.266]	NA	0.106	0.109	0.085
NICKEL	mg/L	0.109	0.2	NA	0.035	0.109	0.088	0.115	0.028	0.036	0.035	0.0510 [0.0810]	0.0700 [0.0640]	NA	0.098	0.169	0.104
POTASSIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/L	<0.0100	<0.0100	NA	<0.0200	<0.0500	<0.0100	0.057	<0.0100	<0.0100	<0.0200	0.0580 [<0.0500]	<0.0100 [<0.0100]	NA	<0.0500	<0.0100	<0.0100
SILVER	mg/L	<0.00200	<0.00200	NA	<0.00500	<0.0125	<0.00300	<0.0125	<0.00300	<0.00500	<0.00500	<0.0125 [<0.0125]	<0.00300 [<0.00300]	NA	<0.0125	<0.00300	<0.00200
SODIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STRONTIUM	mg/L	15.8	5.9	NA	NA	4.61	4.67	5	4.64	NA	NA	3.66 [3.57]	4.56 [4.54]	NA	3.44	3.56	6.75
THALLIUM	mg/L	NA	NA	NA	<0.0500	NA	NA	NA	NA	<0.0200	<0.0500	NA	NA	NA	NA	NA	NA
TIN	mg/L	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.100	<0.0250 [<0.0250]	<0.0250 [0.102]	NA	<0.0250	0.037	<0.0250
Total Cyanide	mg/L	NA	NA	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/L	<0.0250	<0.00500	NA	0.016	<0.0250	0.005	0.11	0.008	0.011	0.007	0.0740 [0.162]	0.0280 [0.0200]	NA	0.039	0.032	<0.0250
ZINC	mg/L	<0.00500	<0.00500	NA	<0.0100	0.026	0.018	0.278	0.021	0.011	0.181	<0.0250 [<0.0250]	0.0130 [0.0140]	NA	<0.0250	0.018	0.009
Metals-Dissolved																	
Aluminum, Dissolved	mg/L	<0.0500	<0.0300	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	NA	<0.0500	0.544	<0.0500
Arsenic, Dissolved	mg/L	<0.0100	<0.00500	NA	NA	0.059	<0.0100	<0.0100	<0.0100	NA	NA	0.170 [0.137]	0.342 [0.381]	NA	0.032	<0.00500	<0.0100
Barium, Dissolved	mg/L	0.014	0.018	NA	NA	<0.100	<0.100	<0.100	<0.100	NA	NA	<0.100 [<0.100]	0.0820 [0.0830]	NA	<0.100	0.019	0.019
Beryllium, Dissolved	mg/L	<0.00250	<0.00250	NA	NA	0.003	<0.00250	<0.00250	0.005	NA	NA	0.00300 [0.00300]	<0.00250 [<0.00250]	NA	<0.00250	<0.00250	0.006
Boron, Dissolved	mg/L	6.24	7.68	NA	NA	7.78	8.26	8.49	7.85	NA	NA	6.96 [8.35]	8.45 [8.57]	NA	8.28	10.8	6.61
Cadmium, Dissolved	mg/L	<0.00100	<0.00100	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	NA	NA	<0.0250 [<0.0250]	<0.00100 [<0.00100]	NA	<0.0250	<0.00100	<0.00100
Calcium, Dissolved	mg/L	372	278	NA	NA	201	223	136	169	NA	NA	87.1 [145]	183 [183]	NA	164	162	201
Chromium, Dissolved	mg/L	0.039	<0.00500	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	<0.0100	<0.00500	0.039
Cobalt, Dissolved	mg/L	<0.0250	<0.00500	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250 [<0.0250]	0.0170 [0.00800]	NA	0.035	0.053	0.037
Copper, Dissolved	mg/L	0.018	<0.0125	NA	NA	<0.0125	<0.0125	<0.0125	0.034	NA	NA	<0.0125 [<0.0125]	<0.0125 [<0.0125]	NA	<0.0125	<0.0125	0.024
Iron, Dissolved	mg/L	0.021	0.05	NA	NA	1.28	2.12	0.191	<0.0500	NA	NA	0.286 [0.234]	0.189 [0.184]	NA	0.222	0.335	0.533
Lead, Dissolved	mg/L	<0.0100	<0.00500	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	<0.0100	<0.00500	<0.0100
Lithium, Dissolved	mg/L	0.45	0.364	NA	NA	0.474	0.839	0.525	0.511	NA	NA	0.257 [0.382]	0.803 [0.805]	NA	0.303	0.437	0.22
Magnesium, Dissolved	mg/L	363	398	NA	NA	268	327	373	403	NA	NA	253 [373]	400 [401]	NA	251	290	311
Manganese, Dissolved	mg/L	0.503	0.216	NA	NA	0.931	1.29	0.066	0.11	NA	NA	0.244 [0.299]	0.545 [0.551]	NA	0.61	0.941	0.92
Molybdenum, Dissolved	mg/L	0.057	<0.0500	NA	NA	<0.0500	<0.0500	0.089	0.106	NA	NA	0.657 [0.727]	0.378 [0.337]	NA	0.104	<0.0500	0.078
Nickel, Dissolved	mg/L	0.105	0.132	NA	NA	0.068	0.091	<0.0250	0.027	NA	NA	0.0490 [0.0530]	0.0680 [0.0560]	NA	0.098	0.096	0.096
Potassium, Dissolved	mg/L	97.9	88.1	NA	NA	52.1	61.1	103	105	NA	NA	63.4 [88.7]	103 [105]	NA	90.4	101	98.3
Selenium, Dissolved	mg/L	<0.0500	<0.0100	NA	NA	<0.0500	<0.0500	<0.0500	0.437	NA	NA	<0.0500 [<0.0500]	<0.0100 [<0.0100]	NA	<0.0500	<0.0100	<0.0500
Silver, Dissolved	mg/L	<0.0130	<0.00200	NA	NA	<0.0130	<0.0130	<0.0130	<0.0130	NA	NA	<0.0130 [<0.0130]	<0.00300 [<0.00300]	NA	<0.0130	<0.00300	<0.0130
Sodium, Dissolved	mg/L	1,190	1,440	NA	NA	1,610	1,700	1,960	2,080	NA	NA	1,680 [2,050]	2,140 [2,200]	NA	1,930	2,310	1,730
Strontium, Dissolved	mg/L	14.3	5.58	NA	NA	4.34	4.8	4.58	4.56	NA	NA	2.63 [3.42]	4.48 [4.50]	NA	3.29	3.37	6.29
Tin, Dissolved	mg/L	<0.0250	<0.0250	NA	NA	<0.0250	0.123	<0.0250	<0.0250	NA	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	<0.0250	0.024	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	0.142 [0.0810]	0.0290 [0.0270]	NA	0.033	0.032	<0.0250

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	DRW-01 03/04/04	DRW-01 08/17/04	DRW-02 03/05/04	DRW-02 08/18/04	DRW-02 04/21/08	DRW-02 09/04/08	DRW-03 03/03/04	DRW-03 08/12/04	DRW-04 01/31/04	DRW-04 03/05/04	DRW-04 08/12/04	DRW-04 05/17/05
Zinc, Dissolved	mg/L	<0.0250	0.01	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250 [<0.0250]	0.0120 [<0.0100]	NA	<0.0250	0.098	<0.0250
Parameters																	
ALKALINITY	mg/L	1,070	1,520	NA	1,330	1,980	2,060	1,500	1,760	2,510	2,180	2,470 [2,620]	2,230 [986]	NA	2,690	2,730	2,310
Alkalinity, Bicarbonate	mg/L	1,070	1,520	NA	1,330	1,980	2,060	1,500	1,760	2,510	2,180	2,470 [2,620]	2,230 [986]	NA	2,690	2,730	2,310
Alkalinity, Carbonate	mg/L	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	NA	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	<1.00	NA	NA	1.01	1.06	<1.00	<1.00	NA	NA	<1.00 [<1.00]	<1.00 [1.40]	NA	<1.00	1.06	<1.00
Bromide	mg/L	0.69	<0.200	NA	0.77	0.69	0.7	<0.200	<0.200	NA	NA	0.730 [0.900]	0.780 [<0.200]	NA	0.68	<0.200	0.74
Chloride (CL)	mg/L	617	543	NA	593	595	587	804	678	304	569	692 [935]	806 [787]	NA	627	576	617
CONDUCTIVITY	mS/cm	10.1	8.1	8.32	7.8	8.45	8.43	11.7	10.2	8.55	10.4	NA	11.7	9.4	10.8	10.4	11.2
CONDUCTIVITY	umhos/cm	8,930	8,280	NA	9,020	9,110	8,940	11,700	10,100	9,840	9,460	11,400 [10,900]	10,400 [12,400]	NA	10,700	10,000	10,200
Dissolved Phosphorus	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	mg/L	2.07	1.59	NA	1.98	<0.200	<0.200	<0.200	<0.200	1.75	12.5	<0.200 [<0.200]	0.235 [<0.200]	NA	3.44	<0.200	2.94
Hydroxide Alkalinity	mg/L	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	NA	<1.00	<1.00	<1.00
Nitrate	mg/L	4.21	2.22	NA	NA	<0.100	<0.100	18.1	10.7	NA	NA	6.79 [17.3]	11.4 [11.5]	NA	<0.100	<0.100	<0.100
Nitrate + Nitrite	mg/L	NA	NA	NA	1.13	NA	NA	NA	NA	<0.100	0.206	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	<0.100	<0.100	NA	NA	<0.100	<0.100	<0.100	<0.100	NA	NA	<0.100 [<0.100]	<0.100 [<0.100]	NA	<0.100	<0.100	<0.100
PERCHLORATE	mg/L	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	7.37	7.51	6.94	6.96	7.04	6.98	8.07	7.13	7	6.87	7.20 [7.20]	7.23 [7.12]	6.21	7.67	7.12	7.06
Phosphorus	mg/L	<0.0500	0.055	NA	NA	0.101	<0.0500	1.3	0.119	NA	NA	0.125 [0.144]	0.0750 [0.0870]	NA	0.052	<0.0500	0.068
SILICA	mg/L	46.5	29.8	NA	NA	39.2	34.3	71.2	41.3	NA	NA	39.4 [42.9]	42.7 [35.9]	NA	45.3	46.8	37.1
Silica, Dissolved	mg/L	43.1	51.3	NA	NA	35.9	44.1	44.4	50.9	NA	NA	37.9 [39.5]	46.9 [47.3]	NA	43.5	55.8	36.3
Sulfate	mg/L	3,710	2,960	NA	4,040	3,050	3,030	4,540	4,140	3,640	5,000	2,810 [3,830]	3,380 [3,380]	NA	3,100	2,950	3,100
Temperature	deg c	24.3	27.2	22.9	24	16.4	23.4	17.7	25.2	23.5	25.1	NA	25.1	23.5	17.8	24	28.8
TKN	mg/L	4.48	<4.00	NA	NA	4.48	<4.00	<4.00	<4.00	NA	NA	5.04 [5.88]	<4.00 [<4.00]	NA	<4.00	<4.00	<4.00
Total Dissolved Solids	mg/L	7,760	6,680	NA	8,300	7,160	7,410	10,400	8,910	8,020	7,180	9,680 [8,800]	8,570 [11,800]	NA	9,090	8,200	8,350
TOTAL ORGANIC CARBON	mg/L	NA	4.58	8.2	23.4	27.6	13	20.7	10.1	31.3	NA	13.9 [14.6]	10.7 [8.29]	NA	41.6	366	NA
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	NA	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	NA	0.00119	0.076	0.00641	0.0179	0.0484	0.032	0.0486	0.0607 [0.0459]	0.00946 [0.00926]	NA	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	0.0164	0.00144	<0.00100	0.0121	0.00567	0.00791	0.0204 [0.0161]	0.00759 [0.00759]	NA	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<0.00100	<5.00	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	<0.00500	NA	0.28	0.35	0.086	0.087	0.14	0.649	0.698	0.0702 [0.0536]	0.0592 [0.0422]	NA	0.0115	<5.00	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.00500	<0.0100	NA	<0.0100	<5.00	<5.00	<5.00	<5.00	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<20.0	<20.0	<20.0	<20.0	<0.00500	<0.00500	<20.0 [<20.0]	<20.0 [<20.0]	NA	<20.0	<20.0	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.00500	<0.0100	NA	<0.0100	<5.00	<5.00	<5.00	<5.00	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-Methyl pyridine	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	NA	0.178	0.407	0.0444	0.0967	0.162	0.724	0.87	0.0548 [0.0459]	0.0503 [0.0154]	NA	0.0108	<5.00	<0.00500
2-Methylphenol	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-Naphthylamine	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-NITROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
2-NITROPHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
3-Methylphenol	mg/L	<0.00500	NA	NA	NA	<5.00	NA	<5.00	NA	NA	NA	<5.00 [<5.00]	NA	NA	<5.00	NA	<0.00500
3-NITROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	DRW-01 03/04/04	DRW-01 08/17/04	DRW-02 03/05/04	DRW-02 08/18/04	DRW-02 04/21/08	DRW-02 09/04/08	DRW-03 03/03/04	DRW-03 08/12/04	DRW-04 01/31/04	DRW-04 03/05/04	DRW-04 08/12/04	DRW-04 05/17/05
4-Methyl Phenol	mg/L	<0.00500	NA	NA	NA	<5.00	NA	<5.00	NA	NA	NA	<5.00 [<5.00]	NA	NA	<5.00	NA	<0.00500
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250	NA	<0.0250	<5.00	<5.00	<5.00	<5.00	<0.0250	<0.0250	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Acenaphthene	mg/L	<0.00500	<0.00500	NA	0.071	0.0355	<5.00	0.00834	0.00866	0.0335	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	0.00571
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
ACETOPHENONE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Aniline	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
ANTHRACENE	mg/L	<0.00500	<0.00500	NA	0.184	<5.00	0.00856	<5.00	<5.00	0.151	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
BENZIDINE	mg/L	<0.0100	<0.0250	NA	<0.0250	<15.0	<15.0	<15.0	<15.0	<0.0250	<0.0250	<15.0 [<15.0]	<15.0 [<15.0]	NA	<15.0	<15.0	<0.0100
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
BENZOIC ACID	mg/L	<0.00500	<0.00500	NA	<0.00500	<20.0	<20.0	<20.0	<20.0	<0.00500	<0.00500	<20.0 [<20.0]	<20.0 [<20.0]	NA	<20.0	<20.0	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.0100	<0.0500	NA	<0.00500	<10.0	<10.0	<10.0	<10.0	0.0204	0.0145	<10.0 [<10.0]	<10.0 [<10.0]	NA	<10.0	<10.0	<0.0100
CHLOROPHENOLS	mg/L	<0.00500	<0.0100	NA	<0.0100	<5.00	<5.00	<5.00	<5.00	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
CYMENE	mg/L	<0.00100	<0.00100	NA	<0.00100	0.00625	<0.00100	<0.00100	<0.00100	<0.00100	0.0146	<0.00100 [<0.00100]	0.00315 [0.00319]	NA	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
DIBENZOFURAN	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	0.0111	0.0158	<5.00	<0.00500	0.0285	0.00761 [0.00769]	0.00758 [<5.00]	NA	0.0123	<5.00	0.0186
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	0.0448	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Diphenylhydrazine	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
FLUORANTHENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	0.00597	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
FLUORENE	mg/L	<0.00500	<0.00500	NA	0.0874	0.051	<5.00	0.0144	0.0184	0.0658	0.14	0.00598 [0.00675]	0.00517 [<5.00]	NA	<5.00	<5.00	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500 [<5.00]	NA	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
m,p-Cresol	mg/L	NA	<0.00500	NA	<0.00500	NA	<5.00	NA	<5.00	<0.00500	<0.00500	NA	<5.00 [<5.00]	NA	NA	<5.00	NA
M-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<0.00100	<5.00	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
NITROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.000500	<5.00	<0.000500	<5.00	<5.00	0.00919	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	0.492	<0.000500	0.354	<0.000500	<0.000500	<0.000500 [<0.000500]	0.304 [5.79]	NA	<0.000500	2.1	<0.000500
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PENTACHLOROPHENOL	mg/L	<0.00500	<0.0100	NA	<0.0100	<5.00	<5.00	<5.00	<5.00	<0.0100	<0.0100	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PHENACETIN	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PHENANTHRENE	mg/L	<0.00500	<0.00500	NA	<0.00500	0.151	0.00972	0.0245	0.03	<0.00500	0.273	0.00546 [0.00837]	0.00545 [<5.00]	NA	<5.00	<5.00	<0.00500
PHENOL	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
P-NITROANILINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PROPYZAMIDE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PYRENE	mg/L	<0.00500	<0.00500	NA	0.0418	0.015	<5.00	<5.00	<5.00	0.0163	0.0256	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
PYRIDINE	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
TPHs																	
DRO	mg/L	<50.0	<50.0	NA	338	359	<50.0	66	19.1	340	523	8.66 [8.34]	<50.0 [<50.0]	NA	<50.0	<50.0	<50.0
GRO	mg/L	<0.100	<0.100	NA	0.414	0.63	<0.100	0.299	0.585	1.17	1.13	0.710 [0.436]	<0.100 [<0.100]	NA	0.259	<0.100	<0.100
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	CFW-01 05/18/05	CFW-01 08/22/05	CFW-01 03/06/06	CFW-01 10/05/07	DRW-01 03/04/04	DRW-01 08/17/04	DRW-02 03/05/04	DRW-02 08/18/04	DRW-02 04/21/08	DRW-02 09/04/08	DRW-03 03/03/04	DRW-03 08/12/04	DRW-04 01/31/04	DRW-04 03/05/04	DRW-04 08/12/04	DRW-04 05/17/05
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	0.0124	0.00464	NA	0.0234	0.0272	0.0379	0.0241	0.0717	0.0354	0.0456	0.0327 [0.0310]	0.0481 [0.0478]	NA	0.123	0.125	0.0638
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	0.00152	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00131 [0.00148]	NA	<0.00100	0.00356	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00200	<0.00200	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00200
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<0.00100	<5.00	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	0.0193	0.0303	0.034	0.0602	0.0387	0.0458	0.0105 [0.0106]	0.0107 [0.0105]	NA	0.0123	0.00594	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	NA	<0.00500	<5.00	<5.00	<5.00	<5.00	<0.00500	<0.00500	<5.00 [<5.00]	<5.00 [<5.00]	NA	<5.00	<5.00	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00100
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00122 [0.00124]	NA	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	0.00342	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	0.0156	0.00355	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	NA	0.00164	0.0148	0.00481	<0.00100	<0.00100	0.00879	0.0192	<0.00100 [<0.00100]	0.00402 [0.00410]	NA	<0.00100	0.00431	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500	<0.000500	<0.000500
METHYL N-BUTYL KETONE	mg/L	<0.00100	<0.00100	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500	<0.00500	<0.00100
METHYLBENZENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
MTBE	mg/L	0.00305	0.00394	NA	0.00148	0.00735	0.0104	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00486 [0.00486]	NA	<0.00100	0.0087	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	NA	0.00776	0.163	0.0534	0.0515	0.106	0.126	0.272	<0.00500 [0.0175]	0.0224 [0.0220]	NA	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	0.00725	0.00184	<0.00100	<0.00100	<0.00100	0.01	<0.00100 [<0.00100]	0.00134 [0.00142]	NA	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	0.014	0.00253	<0.00100	<0.00100	<0.00100	0.00568	<0.00100 [<0.00100]	0.00115 [0.00116]	NA	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0173	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	NA	0.00172	0.0103	0.00568	<0.00100	<0.00100	<0.00100	0.00565	<0.00100 [<0.00100]	0.00527 [0.00528]	NA	<0.00100	0.00415	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00230 [0.00236]	NA	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-04 08/22/05	DRW-04 03/06/06	DRW-04 09/18/06	DRW-04 10/03/07	DRW-05 03/05/04	DRW-05 08/10/04	DRW-05 05/17/05	DRW-05 08/17/05	DRW-05 03/02/06	DRW-05 09/13/06	DRW-05 01/10/07	DRW-05 09/27/07	DRW-06 05/09/05	DRW-06 08/17/05	DRW-06 03/02/06	DRW-06 09/12/06	DRW-06 01/10/07	DRW-06 10/01/07	DRW-07 01/10/07
Explosives																			
2,4,6-TRINITROTOLUENE	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
2,6-DNT / 2,4-DNT	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	0.00535	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	<0.000500	NA	<0.000500	0.0203	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
3-NITROTOLUENE	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
4-Amino-2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
4-NITROTOLUENE	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
RDX	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
TETRYL	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
Metals																			
ALUMINUM	<0.0300	NA	<0.0300	NA	<0.100	<0.100	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	NA
ANTIMONY	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	<0.0500	NA
ARSENIC	<0.00500	NA	0.089	0.047	<0.0100	<0.00500	<0.0100	<0.00500	0.115	0.078	NA	<0.00500	<0.0100	<0.00500	0.011	<0.0100	NA	<0.00500	NA
BARIUM	<0.0100	NA	0.011	0.012	<0.100	0.032	0.018	0.02	0.023	<0.0100	NA	0.019	0.016	0.013	0.015	0.012	NA	0.011	NA
BERYLLIUM	<0.00250	NA	<0.00250	<0.00250	<0.00250	<0.00250	0.006	<0.00250	<0.00250	<0.00250	NA	<0.00250	0.003	<0.00250	<0.00250	<0.00250	NA	<0.00250	NA
BORON	8.06	NA	7.18	NA	4.65	3.9	5.5	6.85	8.89	7.3	NA	NA	8.95	6.92	9.31	7.27	NA	NA	NA
CADMIUM	<0.00100	NA	<0.00100	<0.00200	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	0.001	<0.00100	<0.00100	<0.00100	0.003	<0.00200	0.003
CALCIUM METAL	NA	NA	187	NA	NA	NA	NA	NA	115	157	NA	NA	NA	NA	219	185	NA	NA	NA
Chromium	<0.00500	NA	0.019	<0.00500	<0.0100	<0.00500	0.039	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	0.117	0.024	<0.00500	<0.00500	0.034
COBALT	<0.00500	NA	0.014	0.025	<0.0200	<0.00500	<0.0200	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.0200	<0.00500	<0.00500	<0.00500	NA	<0.00500	NA
COPPER	<0.00500	NA	0.008	0.005	<0.0125	<0.00500	0.011	0.011	0.009	<0.00500	<0.00500	0.014	0.056	0.037	0.007	0.022	<0.00500	<0.00500	<0.00500
Hexavalent Chromium	<0.0100	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	<0.0100	<0.0100	NA	NA	NA	NA	NA
Iron	0.751	NA	0.715	NA	1.2	0.835	1.61	1.02	2.03	1.9	NA	NA	0.016	0.012	0.822	0.31	NA	NA	NA
LEAD	<0.00500	NA	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500
LITHIUM	NA	NA	0.088	NA	NA	NA	NA	NA	0.141	0.056	NA	NA	NA	NA	0.248	0.112	NA	NA	NA
MAGNESIUM	NA	NA	380	NA	NA	NA	NA	NA	396	469	NA	NA	NA	NA	485	553	NA	NA	NA
MANGANESE	0.921	NA	0.672	NA	0.202	0.245	0.37	0.174	0.377	0.153	NA	NA	0.202	0.104	0.108	0.039	NA	NA	NA
MERCURY	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	NA
MOLYBDENUM	0.237	NA	0.078	NA	0.106	0.137	<0.0500	<0.0500	<0.0500	0.119	NA	NA	0.185	0.213	0.119	0.105	NA	NA	NA
NICKEL	0.247	NA	0.064	0.082	<0.0250	0.012	0.016	0.013	0.02	0.009	NA	0.01	0.02	0.012	0.243	0.056	NA	0.086	NA
POTASSIUM	NA	NA	62.6	NA	NA	NA	NA	NA	83.1	53.3	NA	NA	NA	NA	153	95.7	NA	NA	NA
SELENIUM	<0.0100	NA	<0.0100	<0.0200	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	<0.0200	0.098	<0.0100	<0.0100	0.035	NA	0.065	NA
SILVER	<0.00200	NA	<0.00200	<0.00500	<0.0125	<0.00300	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00200
SODIUM	NA	NA	2,480	NA	NA	NA	NA	NA	1,840	2,780	2,640	NA	NA	NA	2,490	3,000	7,470	NA	2,820
STRONTIUM	4.15	NA	3.17	NA	6.24	6.8	5.23	6.74	5.21	2.78	NA	NA	9.36	11.8	6.88	3.32	NA	NA	NA
THALLIUM	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA	NA	<0.0500	NA
TIN	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	NA
Total Cyanide	NA	NA	NA	<0.0100	NA	NA	NA	NA	<0.0100	NA	NA	<0.0100	NA	NA	<0.0100	NA	NA	<0.0100	NA
VANADIUM (FUME OR DUST)	<0.00500	NA	0.021	0.038	<0.0250	0.021	0.026	0.032	0.019	0.017	NA	0.01	0.103	0.072	0.082	0.078	NA	0.069	NA
ZINC	<0.00500	NA	0.075	<0.0100	<0.0250	0.059	0.006	<0.00500	<0.00500	<0.00500	<0.00500	0.011	0.007	<0.00500	<0.00500	0.019	0.005	<0.0100	<0.00500
Metals-Dissolved																			
Aluminum, Dissolved	<0.0300	NA	<0.0300	NA	<0.0500	<0.0500	<0.0500	0.08	<0.0300	<0.0300	NA	NA	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA
Arsenic, Dissolved	0.116	NA	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	0.114	0.082	NA	NA	<0.0100	<0.00500	<0.00500	<0.00500	NA	NA	NA
Barium, Dissolved	0.018	NA	0.014	NA	<0.100	0.031	0.018	0.011	0.017	0.014	NA	NA	0.013	<0.0100	<0.0100	0.011	NA	NA	NA
Beryllium, Dissolved	<0.00250	NA	<0.00250	NA	<0.00250	<0.00250	0.006	<0.00250	<0.00250	<0.00250	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	NA	NA	NA
Boron, Dissolved	7.31	NA	6.88	NA	4.35	4.11	5.26	4.85	8.51	6.9	NA	NA	7.78	5.71	8.96	7.83	NA	NA	NA
Cadmium, Dissolved	<0.00100	NA	<0.00100	NA	<0.0250	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	<0.00100
Calcium, Dissolved	214	NA	187	NA	301	367	47	68.8	108	160	NA	NA	214	303	221	208	NA	NA	NA
Chromium, Dissolved	<0.00500	NA	<0.00500	NA	<0.0100	<0.00500	0.038	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500
Cobalt, Dissolved	0.031	NA	0.01	NA	<0.0250	0.005	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA
Copper, Dissolved	<0.0125	NA	<0.0125	NA	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	<0.0125	NA	0.044	0.032	<0.0125	0.026	<0.0125	NA	<0.0125
Iron, Dissolved	0.299	NA	0.667	NA	1.14	0.19	0.077	0.092	1.89	1.8	NA	NA	0.015	<0.0100	0.029	0.045	NA	NA	NA
Lead, Dissolved	<0.00500	NA	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500
Lithium, Dissolved	0.356	NA	0.094	NA	0.427	NA	0.141	0.16	0.137	0.067	NA	NA	0.375	0.43	0.235	0.126	NA	NA	NA
Magnesium, Dissolved	378	NA	381	NA	302	358	308	417	379	489	NA	NA	614	1,030	504	599	NA	NA	NA
Manganese, Dissolved	0.825	NA	0.655	NA	0.2	0.26	0.351	0.129	0.374	0.148	NA	NA	0.179	0.083	0.108	0.04	NA	NA	NA
Molybdenum, Dissolved	0.087	NA	0.075	NA	0.106	0.118	<0.0500	<0.0500	<0.0500	0.122	NA	NA	0.161	0.211	0.117	0.109	NA	NA	NA
Nickel, Dissolved	0.112	NA	0.058	NA	<0.0250	0.008	<0.0250	0.01	0.018	<0.00500	NA	NA	<0.0250	<0.00500	0.236	0.055	NA	NA	NA
Potassium, Dissolved	88.1	NA	62	NA	78.5	94.3	65.8	60.5	84.2	52.2	NA	NA	161	232	137	110	NA	NA	NA
Selenium, Dissolved	<0.0100	NA	<0.0100	NA	<0.0500	<0.0100	<0.0500	<0.0100	<0.0100	<0.0100	NA	NA	0.083	<0.0100	<0.0100	0.051	NA	NA	NA
Silver, Dissolved	<0.00200	NA	<0.00200	NA	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	<0.00200
Sodium, Dissolved	2,190	NA	2,680	NA	1,030	1,200	1,580	2,160	1,770	2,720	2,170	NA	2,850	4,650	2,290	2,790	6,990	NA	2,560
Strontium, Dissolved	3.76	NA	2.96	NA	5.65	6.76	4.76	3.32	4.92	2.68	NA	NA	7.65	6.38	6.53	3.64	NA	NA	NA
Tin, Dissolved	<0.0250	NA	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA
Vanadium, Dissolved	0.019	NA	0.019	NA	<0.0250	0.015	<0.0250	0.028	0.018	0.02	NA	NA	0.091	0.069	0.072	0.072	NA	NA	NA

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-04 08/22/05	DRW-04 03/06/06	DRW-04 09/18/06	DRW-04 10/03/07	DRW-05 03/05/04	DRW-05 08/10/04	DRW-05 05/17/05	DRW-05 08/17/05	DRW-05 03/02/06	DRW-05 09/13/06	DRW-05 01/10/07	DRW-05 09/27/07	DRW-06 05/09/05	DRW-06 08/17/05	DRW-06 03/02/06	DRW-06 09/12/06	DRW-06 01/10/07	DRW-06 10/01/07	DRW-07 01/10/07
Zinc, Dissolved	0.009	NA	<0.00500	NA	<0.0250	0.01	<0.0250	<0.00500	<0.0100	<0.00500	<0.00500	NA	<0.0250	<0.00500	<0.0100	<0.00500	<0.00500	NA	<0.00500
Parameters																			
ALKALINITY	2,370	NA	2,230	270	644	666	2,820	3,360	2,790	2,730	3,140	2,230	1,810	1,610	1,790	1,830	892	1,490	542
Alkalinity, Bicarbonate	2,370	NA	1,880	270	644	666	2,820	3,360	2,790	2,730	3,140	2,230	1,810	1,610	1,790	1,830	892	1,490	542
Alkalinity, Carbonate	<1.00	NA	348	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	<1.00	NA	1.01	NA	<1.00	<1.00	<1.00	1.12	<1.00	<1.00	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	NA	<1.00
Bromide	<0.200	NA	<0.200	0.63	<0.200	<0.200	1.04	<0.200	0.83	<0.200	<1.00	0.94	1.4	3.26	1.19	<0.200	3.5	0.86	<1.00
Chloride (CL)	624	NA	1,270	497	613	652	1,060	1,100	762	939	906	876	1,790	3,720	1,360	1,470	4,460	810	1,420
CONDUCTIVITY	10.1	10.1	11	9.97	8.06	8.12	11.6	10.9	10.3	11.7	10.4	9.96	11.2	23.8	13.8	14.9	28.7	13.3	12.4
CONDUCTIVITY	10,300	NA	10,500	11,700	7,900	7,930	10,500	11,200	10,900	11,800	10,400	10,600	16,100	24,200	14,400	14,700	28,900	15,400	12,200
Dissolved Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	3.23	NA	3.38	1.82	<0.200	0.308	2.39	1.94	1.69	1.09	1.87	1.73	2.89	3.76	3.54	3.13	5.36	2.72	2.99
Hydroxide Alkalinity	<1.00	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	<0.100	NA	<0.200	NA	12.1	13.3	<0.100	75.4	0.37	1.54	<0.500	NA	35.9	141	21.7	42.4	220	NA	36.3
Nitrate + Nitrite	NA	NA	NA	6.05	NA	NA	NA	NA	NA	NA	NA	0.616	NA	NA	NA	NA	NA	28.4	NA
Nitrite	<0.100	NA	<0.200	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.200	<0.500	NA	<0.100	<0.100	<0.100	<0.200	<0.500	NA	1.84
PERCHLORATE	NA	<0.00500	0.0037	NA	NA	NA	NA	NA	0.022	<0.0100	NA	NA	NA	NA	<0.0100	<0.0100	NA	NA	NA
pH	7.12	6.79	7.2	7.24	7.83	7.21	7.48	7.44	7.45	17.1	7.45	7.38	7.16	7.18	7.3	7.42	7.04	7.1	7.53
Phosphorus	0.128	NA	0.054	NA	<0.0500	<0.0500	0.06	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	<0.0500
SILICA	51.8	NA	39	NA	44.2	28.2	27	26.6	37.8	27.4	NA	NA	43.4	27.9	46.9	33.7	NA	NA	NA
Silica, Dissolved	42.7	NA	37.8	NA	41	39	25.5	23.9	37	26.8	NA	NA	41.4	27.9	45.6	35.6	NA	NA	NA
Sulfate	3,030	NA	3,280	4,410	3,340	3,550	1,900	2,120	2,960	5,160	2,470	3,150	5,490	7,690	5,100	6,310	13,400	7,680	4,940
Temperature	27.2	22.7	22.9	25.3	15.9	23.1	24.5	27	24.7	22.4	19.9	24.1	23.4	26.2	24.3	24.2	19.3	23.2	18.7
TKN	20.7	NA	5.04	NA	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	NA	NA	4.2	<4.00	<4.00	<4.00	NA	NA	NA
Total Dissolved Solids	8,300	NA	7,820	9,840	6,820	7,070	7,860	8,670	9,440	11,200	8,050	7,850	13,000	21,100	12,200	11,400	30,300	13,800	10,500
TOTAL ORGANIC CARBON	14.7	41	24	42	5.42	4.88	NA	16.6	15	18	15.1	11.2	NA	12.7	8.8	9	7.7	7.86	2.89
SVOCs																			
1,2,3-TRICHLOROBENZENE	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
1,4-DICHLOROBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	<0.00500	NA	<0.00500	<0.00500	0.00564	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	<0.0100	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0500	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	<0.00500	NA	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	0.0108	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	<0.0100	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0500	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0250	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
2-CHLORONAPHTHALENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
3-NITROANILINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-04 08/22/05	DRW-04 03/06/06	DRW-04 09/18/06	DRW-04 10/03/07	DRW-05 03/05/04	DRW-05 08/10/04	DRW-05 05/17/05	DRW-05 08/17/05	DRW-05 03/02/06	DRW-05 09/13/06	DRW-05 01/10/07	DRW-05 09/27/07	DRW-06 05/09/05	DRW-06 08/17/05	DRW-06 03/02/06	DRW-06 09/12/06	DRW-06 01/10/07	DRW-06 10/01/07	DRW-07 01/10/07
4-Methyl Phenol	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	<0.0250	NA	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.125	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	<0.0250	NA	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.125	<0.0250	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	<0.00500	NA	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	<0.0500	NA	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.0250	<0.00500	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	<0.0100	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0500	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	0.0129	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	<0.00500	NA	<0.00500	<0.00500	NA	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	<0.00500	NA	<0.00500	<0.000500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	0.0195	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.000500	<0.00500
N-NITROSODI-N-BUTYLAMINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	<0.000500	NA	0.0935	<0.000500	<0.000500	0.0904	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
P-CHLOROANILINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	<0.0100	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0500	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TPHs																			
DRO	<50.0	NA	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00
GRO	<0.100	NA	0.351	0.111	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																			
1,1,1,2-TETRACHLOROETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-04 08/22/05	DRW-04 03/06/06	DRW-04 09/18/06	DRW-04 10/03/07	DRW-05 03/05/04	DRW-05 08/10/04	DRW-05 05/17/05	DRW-05 08/17/05	DRW-05 03/02/06	DRW-05 09/13/06	DRW-05 01/10/07	DRW-05 09/27/07	DRW-06 05/09/05	DRW-06 08/17/05	DRW-06 03/02/06	DRW-06 09/12/06	DRW-06 01/10/07	DRW-06 10/01/07	DRW-07 01/10/07
1,1,2,2-TETRACHLOROETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	0.0396	NA	0.0258	0.086	0.0123	0.00865	0.0234	0.0307	0.0531	0.0296	0.0349	0.0228	0.0411	0.0251	0.0385	0.0348	0.0125	0.027	0.00834
1,1-DICHLOROETHYLENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00254
1,1-Dichloropropene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<0.00200	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
2,2-DICHLOROPROPANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	<0.00100	NA	0.00249	0.00636	0.00157	0.00146	<0.00100	0.00545	0.0047	0.00199	0.00381	0.00214	0.00111	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	<0.00500	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	<0.00100	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	<0.00100	NA	<0.00100	<0.00100	0.00222	0.00219	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.0024
CHLOROMETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
Isopropylbenzene	<0.00100	NA	<0.00100	<0.00100	0.0023	<0.00100	<0.00100	<0.00100	0.00275	0.00206	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	NA
METHYL N-BUTYL KETONE	<0.00100	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	<0.00100	NA	0.00361	0.00558	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00161	0.00123	<0.00100	<0.00100	0.00227	<0.00100	0.00137	<0.00100
NAPHTHALENE	<0.00500	NA	<0.00500	<0.00500	0.00588	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	<0.00100	NA	0.00135	<0.00100	0.00159	<0.00100	<0.00100	<0.00100	0.00115	0.00138	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	<0.00500	NA	<0.00500
tert-Butylbenzene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00371
Vinyl Chloride	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-08 05/05/05	DRW-08 08/16/05	DRW-08 02/23/06	DRW-08 09/11/06	DRW-08 01/11/07	DRW-08 09/26/07	DRW-08 04/01/08	DRW-08 08/11/08	DRW-11 01/16/07	DRW-12 03/08/04	DRW-12 08/09/04	DRW-12 05/17/05	DRW-12 08/18/05	DRW-12 03/06/06	DRW-12 09/13/06	DRW-12 01/17/07	DRW-12 09/26/07	DRW-13 03/04/04	DRW-13 08/11/04	DRW-13 05/04/05
Explosives																				
2,4,6-TRINITROTOLUENE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00331	NA	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	<0.000500
2-NITROTOLUENE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	<0.000500
4-amino-DNT / 2-amino-DNT	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA
4-NITROTOLUENE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
RDX	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
Metals																				
ALUMINUM	<0.0300	0.105	<0.0300	<0.0300	NA	NA	NA	NA	NA	<0.100	<0.100	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	0.301	0.149	<0.0300
ANTIMONY	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA
ARSENIC	<0.0100	<0.00500	<0.00500	<0.0100	NA	<0.00500	<0.00500	<0.0100	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100
BARIUM	0.013	0.016	<0.0100	<0.0100	NA	0.011	0.011	0.012	NA	<0.100	0.025	0.016	0.028	0.018	<0.0100	<0.0100	0.015	<0.100	0.023	<0.0100
BERYLLIUM	0.003	<0.00250	<0.00250	<0.00250	NA	<0.00250	<0.00200	<0.00200	NA	<0.00250	<0.00250	0.006	<0.00250	<0.00250	<0.00250	NA	<0.00250	0.005	<0.00250	<0.00250
BORON	7.03	6.7	5.67	5.23	NA	NA	NA	NA	NA	3	3.53	2.58	3.87	3.02	2.31	NA	NA	1.96	2.3	1.76
CADMIUM	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200	<0.00100 [<0.00100]	<0.00500	0.003	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	<0.00500	<0.00100	<0.00100
CALCIUM METAL	NA	NA	436	474	NA	NA	NA	NA	NA	NA	NA	NA	NA	584	607	NA	NA	NA	NA	NA
Chromium	0.085	0.146	0.077	0.073	1.06	0.601	0.226	0.089	<0.00500 [<0.00500]	0.373	0.005	0.777	1.57	1.14	1.4	0.636	0.37	0.021	1.08	0.591
COBALT	<0.0200	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00200	<0.00200	NA	<0.0200	0.011	<0.0200	0.018	0.031	0.01	NA	<0.00500	<0.0200	0.014	<0.0200
COPPER	0.063	0.132	0.027	<0.00500	0.026	0.018	<0.00500	<0.00500	<0.00500 [<0.00500]	0.016	0.025	0.1	0.112	0.144	0.056	0.012	0.013	<0.0125	0.03	0.021
Hexavalent Chromium	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.0325	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100
Iron	0.491	1.19	<0.0100	0.704	NA	NA	NA	NA	NA	5.75	0.975	5.12	11.3	21	11.7	NA	NA	0.211	2.46	5.41
LEAD	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500
LITHIUM	NA	NA	0.769	0.159	NA	NA	NA	NA	NA	NA	1.78	NA	NA	0.47	0.153	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	525	538	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,730	1,720	NA	NA	NA	NA	NA
MANGANESE	<0.0250	0.046	0.01	0.051	NA	NA	NA	NA	NA	0.186	0.067	0.068	0.099	0.525	0.164	NA	NA	<0.0250	0.211	0.145
MERCURY	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	0.466	0.371	0.411	0.32	NA	NA	NA	NA	NA	0.313	0.457	0.31	0.633	0.371	0.293	NA	NA	0.152	0.213	0.158
NICKEL	0.046	0.198	0.038	0.467	NA	0.287	0.248	0.119	NA	1.13	1.28	1.38	3.42	3.45	1.88	NA	0.822	0.243	1.42	0.965
POTASSIUM	NA	NA	118	89.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	217	164	NA	NA	NA	NA	NA
SELENIUM	0.098	<0.0100	<0.0100	<0.0100	NA	0.025	0.033	0.057	NA	0.251	0.265	0.245	0.285	0.139	0.145	0.101	0.201	0.084	<0.0100	0.05
SILVER	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00200 [<0.00200]	<0.0125	<0.00300	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.0125	<0.00300	<0.00200
SODIUM	NA	NA	1,860	2,120	2,560	NA	NA	NA	246 [224]	NA	NA	NA	NA	5,510	6,100	6,770	NA	NA	NA	NA
STRONTIUM	14.7	7.26	6.18	5.26	NA	NA	NA	NA	NA	8.25	11.2	18.5	14	13	7.33	NA	NA	10.8	11.2	16.3
THALLIUM	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA
TIN	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.100	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	0.18	<0.0250
Total Cyanide	NA	NA	<0.0100	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	<0.0100	NA	NA	NA
VANADIUM (FUME OR DUST)	0.041	0.039	0.023	<0.00500	NA	0.036	0.026	0.029	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.0250	0.015	<0.0250
ZINC	0.006	<0.00500	<0.00500	0.01	<0.00500	<0.0100	<0.00700	<0.00500	<0.00500 [<0.00500]	<0.0250	0.018	0.005	0.014	0.025	0.018	<0.00500	0.028	<0.0250	0.021	<0.00500
Metals-Dissolved																				
Aluminum, Dissolved	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	<0.0500	<0.0500	<0.0500
Arsenic, Dissolved	<0.0100	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100
Barium, Dissolved	<0.0100	0.014	<0.0100	<0.0100	NA	NA	NA	NA	NA	<0.100	0.025	0.012	0.015	0.018	0.012	0.011	NA	<0.100	0.021	<0.0100
Beryllium, Dissolved	<0.00250	<0.00250	<0.00250	<0.00250	NA	NA	NA	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	NA	NA	0.003	0.006	<0.00250
Boron, Dissolved	5.83	6.16	5.08	5.39	NA	NA	NA	NA	NA	2.88	3.49	2.53	2.75	3.02	2.28	NA	NA	1.9	2.45	1.69
Cadmium, Dissolved	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	NA	NA	<0.00100 [<0.00100]	<0.0250	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	<0.0250	<0.00100	<0.00100
Calcium, Dissolved	461	515	460	467	NA	NA	NA	NA	NA	416	502	533	583	529	512	NA	NA	481	523	471
Chromium, Dissolved	0.019	0.005	0.047	0.029	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	0.344	<0.00500	0.052	0.031	0.029	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100
Cobalt, Dissolved	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	<0.0250	0.011	<0.0250	<0.00500	<0.00500	0.009	NA	NA	<0.0250	<0.00500	<0.0250
Copper, Dissolved	<0.0125	0.075	0.024	<0.0125	<0.0125	NA	NA	NA	<0.0125 [<0.0125]	<0.0125	0.021	0.039	0.037	0.138	0.04	<0.0125	NA	<0.0125	<0.0125	<0.0125
Iron, Dissolved	0.031	<0.0100	<0.0100	0.568	NA	NA	NA	NA	NA	5.7	0.901	<0.0100	0.236	18.5	2.13	NA	NA	<0.0500	0.364	0.101
Lead, Dissolved	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.0100	<0.00500	<0.0100
Lithium, Dissolved	0.438	0.437	0.406	0.189	NA	NA	NA	NA	NA	0.815	1.69	0.521	0.891	0.47	0.187	NA	NA	0.492	NA	0.308
Magnesium, Dissolved	555	555	539	530	NA	NA	NA	NA	NA	1,530	1,710	1,860	1,570	1,800	1,770	NA	NA	464	570	390
Manganese, Dissolved	<0.0250	0.03	0.01	0.058	NA	NA	NA	NA	NA	0.166	0.067	0.053	0.045	0.52	0.148	NA	NA	<0.0250	0.185	0.057
Molybdenum, Dissolved	0.378	0.32	0.394	0.342	NA	NA	NA	NA	NA	0.133	0.439	0.307	0.329	0.352	0.29	NA	NA	0.146	0.172	0.155
Nickel, Dissolved	0.032	0.108	0.036	0.531	NA	NA	NA	NA	NA	1.03	1.28	1.34	1.19	3.38	1.79	NA	NA	0.234	1.27	0.567
Potassium, Dissolved	125	118	121	97	NA	NA	NA	NA	NA	198	247	198	178	210	162	NA	NA	105	134	112
Selenium, Dissolved	0.078	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	0.136	0.153	0.242	0.214	0.125	0.192	0.144	NA	0.078	<0.0100	<0.0500
Silver, Dissolved	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	NA	NA	<0.00200 [<0.00200]	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	<0.0130	<0.00300	<0.0130
Sodium, Dissolved	1,940	1,960	1,800	2,300	2,380	NA	NA	NA	227 [223]	5,120	5,200	6,010	6,170	5,040	6,730	6,470	NA	1,300	1,660	982
Strontium, Dissolved	11.3	5.66	6.18	5.43	NA	NA	NA	NA	NA	7.74	10.7	17.6	8.18	12.7	6.65	NA	NA	9.73	10.8	14.3
Tin, Dissolved	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250
Vanadium, Dissolved	0.033	0.016	0.023	0.019	NA	NA	NA	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250	<0.00500	<0.0250

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-08 05/05/05	DRW-08 08/16/05	DRW-08 02/23/06	DRW-08 09/11/06	DRW-08 01/11/07	DRW-08 09/26/07	DRW-08 04/01/08	DRW-08 08/11/08	DRW-11 01/16/07	DRW-12 03/08/04	DRW-12 08/09/04	DRW-12 05/17/05	DRW-12 08/18/05	DRW-12 03/06/06	DRW-12 09/13/06	DRW-12 01/17/07	DRW-12 09/26/07	DRW-13 03/04/04	DRW-13 08/11/04	DRW-13 05/04/05
Zinc, Dissolved	<0.0250	<0.00500	<0.0100	0.011	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	<0.0250	0.016	<0.0250	0.016	0.025	0.015	<0.00500	NA	<0.0250	0.013	<0.0250
Parameters																				
ALKALINITY	332	356	352	306	248	378	416	380	120 [120]	208	220	230	238	170	204	206	240	168	194	202
Alkalinity, Bicarbonate	332	356	352	306	248	378	416	380	120 [120]	208	220	230	238	170	204	206	240	168	194	202
Alkalinity, Carbonate	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	1.01 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	<1.00	<1.00	<1.00
Bromide	0.89	<0.200	0.79	<0.200	<1.00	0.96	NA	NA	<0.400 [<0.400]	3.5	<0.200	<0.200	3.4	3.42	<0.200	<1.00	3.35	0.94	0.89	0.62
Chloride (CL)	914	738	743	1,040	1,010	1,040	956	1,130	138 [138]	5,550	4,940	5,700	5,680	4,980	6,680	5,320	5,010	1,210	1,360	726
CONDUCTIVITY	18.8	13.5	11.7	13.2	12.4	12.5	11.5	13.3	3.77 [3.77]	30.4	29.5	33.4	30.2	29.2	30	29.3	28.3	10	10.2	10.2
CONDUCTIVITY	13,400	11,600	11,900	12,300	12,100	12,600	11,900	12,600	3,810 [3,790]	30,500	2,840	30,500	30,900	30,300	29,700	29,000	30,000	10,600	11,000	8,100
Dissolved Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
FLUORIDE	3.45	3.29	3.45	4.22	3.78	3.54	3.39	3.67	3.82 [3.84]	<0.200	<0.200	<0.200	2.76	3.57	1.24	3.76	2.83	4.32	4.17	4.28
Hydroxide Alkalinity	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	31	29.5	31.8	48.2	NA	NA	NA	NA	7.69 [7.73]	160	149	33.9	166	150	182	159	NA	42.4	44.4	21.9
Nitrate + Nitrite	NA	NA	NA	NA	40.4	66.2	27.5	1,620	NA	NA	NA	NA	NA	NA	NA	NA	62.5	NA	NA	NA
Nitrite	<0.100	<0.100	<0.100	<0.200	NA	NA	NA	NA	<0.200 [<0.200]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.200	<0.500	NA	<0.100	<0.100	<0.100
PERCHLORATE	NA	NA	<0.00500	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0200	<0.0200	NA	NA	NA	NA	NA
pH	7.45	7.09	7.17	7.12	6.9	7.39	7.27	7.63	7.36 [7.33]	7.32	7.37	7.18	7.56	6.74	7.13	7.14	7.69	7.74	7.17	7.58
Phosphorus	<0.0500	0.119	<0.0500	<0.0500	0.052	NA	NA	NA	<0.0500 [<0.0500]	<0.0500	0.101	0.079	0.315	<0.0500	0.052	<0.0500	NA	<0.0500	<0.0500	<0.0500
SILICA	36.1	39.5	17.2	29.5	NA	NA	NA	NA	NA	14.2	18.9	14.2	22.4	18.5	15.8	NA	NA	32	26.3	26.7
Silica, Dissolved	31.5	36.5	16	31	NA	NA	NA	NA	NA	14	18.4	13.8	14.8	17.4	13.4	NA	NA	31.7	25.5	26.2
Sulfate	6,190	5,340	5,390	6,520	6,140	6,040	5,580	5,920	2,120 [2,200]	13,200	11,800	13,700	13,800	11,700	14,400	13,200	11,900	4,610	4,810	4,140
Temperature	28.5	25.2	19.8	24.3	19.1	23.2	21.9	23.4	14.3 [14.3]	25.5	22.5	26.8	28.2	25.7	24.3	15.9	22.7	18.3	22.9	24.1
TKN	<4.00	<4.00	<4.00	<4.00	NA	NA	NA	NA	NA	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	NA	NA	<4.00	<4.00	<4.00
Total Dissolved Solids	11,800	10,500	10,900	13,800	11,500	11,200	11,000	11,300	3,610 [3,810]	15,900	27,900	28,800	31,700	34,700	26,000	29,300	28,700	9,460	10,100	7,010
TOTAL ORGANIC CARBON	NA	7.25	1.8	1.5	<1.00	2.39	1.12	NA	<1.00 [<1.00]	2.91	2.09	NA	8.16	2.4	2.1	1.45	2.66	2.15	<1.00	6.15
SVOCs																				
1,2,3-TRICHLOROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1,2,4-TRICHLOROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00113	<0.00100
1,2-BENZPHENANTHRACENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1,3,5-Trimethylbenzene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00500]	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1-Methylnaphthalene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
1-NAPHTHYLAMINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4,5-TRICHLOROPHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4,6-Trichlorophenol	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
2,4-DICHLOROPHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4-DIMETHYLPHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,4-DINITROPHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500
2,4-DINITROTOLUENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2,6-DICHLOROPHENOL	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
2,6-DINITROTOLUENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Butoxy Ethanol	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
2-CHLORONAPHTHALENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-CHLOROPHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Methyl pyridine	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Methyl-4,6-Dinitrophenol	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-METHYLNAPHTHALENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Methylphenol	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-Naphthylamine	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-NITROANILINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
2-NITROPHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3,3'-DICHLOROBENZIDINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3-METHYLCHLORANTHRENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
3-Methylphenol	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	<0.00500
3-NITROANILINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-Aminobiphenyl	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-BROMOPHENYL PHENYL ETHER	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-Chloro-3-methylphenol	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-CHLOROPHENYL PHENYL ETHER	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
4-CHLOROTOLUENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-08 05/05/05	DRW-08 08/16/05	DRW-08 02/23/06	DRW-08 09/11/06	DRW-08 01/11/07	DRW-08 09/26/07	DRW-08 04/01/08	DRW-08 08/11/08	DRW-11 01/16/07	DRW-12 03/08/04	DRW-12 08/09/04	DRW-12 05/17/05	DRW-12 08/18/05	DRW-12 03/06/06	DRW-12 09/13/06	DRW-12 01/17/07	DRW-12 09/26/07	DRW-13 03/04/04	DRW-13 08/11/04	DRW-13 05/04/05
4-Methyl Phenol	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	<0.00500
4-Methyl-2-pentanone(MIBK)	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250 [<0.0250]	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
a,a-Dimethylphenethylamine	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Acenaphthene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ACENAPHTHYLENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ACETOPHENONE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Aniline	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ANTHRACENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BENZIDINE	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250 [<0.0250]	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100
Benzo(a)anthracene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(a)pyrene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(b)fluoranthene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(g,h,i)perylene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Benzo(k)fluoranthene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BENZOIC ACID	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500
BENZYL ALCOHOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BENZYL BUTYL PHTHALATE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
bis (2-chloroethoxy) methane	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
bis(2-Chloroethyl) ether	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100
CHLOROPHENOLS	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
CYMENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIBENZ[A,J]ACRIDINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIBENZOFURAN	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIETHYL PHTHALATE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIMETHYL PHTHALATE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Di-n-butyl phthalate	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Di-n-octyl phthalate	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
DIPHENYLAMINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Diphenylhydrazine	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
ETHYL METHANESULFONATE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
FLUORANTHENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
FLUORENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
HEXACHLORO-1,3-BUTADIENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
HEXACHLOROCYCLOPENTADIENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
HEXACHLOROETHANE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
Indeno(1,2,3-cd)pyrene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
m,p-Cresol	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<5.00	NA
M-DICHLOROBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00500]	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
METHYL METHANESULFONATE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
NITROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.000500	<0.000500	<0.00500	<0.00500 [<0.00500]	<5.00	<0.000500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.000500	<5.00	<5.00	<0.00500
N-NITROSODI-N-BUTYLAMINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
n-Nitrosodi-n-propylamine	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
N-NITROSOPIPERIDINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
P-CHLOROANILINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PENTACHLOROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PENTACHLORONITROBENZENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PENTACHLOROPHENOL	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500
PHENACETIN	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PHENANTHRENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PHENOL	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
P-NITROANILINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PROPYZAMIDE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PYRENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
PYRIDINE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
TPHs																				
DRO	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00 [<5.00]	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<50.0	<50.0	<50.0
GRO	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																				
1,1,1,2-TETRACHLOROETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	0.00183	0.00118	0.00182	0.00143	0.00139	0.00162	0.00163	0.00133	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-08 05/05/05	DRW-08 08/16/05	DRW-08 02/23/06	DRW-08 09/11/06	DRW-08 01/11/07	DRW-08 09/26/07	DRW-08 04/01/08	DRW-08 08/11/08	DRW-11 01/16/07	DRW-12 03/08/04	DRW-12 08/09/04	DRW-12 05/17/05	DRW-12 08/18/05	DRW-12 03/06/06	DRW-12 09/13/06	DRW-12 01/17/07	DRW-12 09/26/07	DRW-13 03/04/04	DRW-13 08/11/04	DRW-13 05/04/05
1,1,2,2-TETRACHLOROETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	0.00225	0.00175	0.00279	0.0029	0.00318	0.00471	0.00625	0.00469	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200
1,2-Dibromoethane	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00500]	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
2,2-DICHLOROPROPANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500
BROMOBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100
CARBON DISULFIDE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	0.00163	0.00149	0.0012	0.00127	0.00122	0.00108	<0.00100	<0.00100	0.00393 [0.00395]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00325	0.00279	0.00306
CHLOROMETHANE	<0.00100	0.00308	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	0.00373	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
Isopropylbenzene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
METHYL N-BUTYL KETONE	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100
METHYLBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA
tert-Butylbenzene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	<0.00100	<0.00100	0.00244	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00939	0.0197	0.0108	0.00945	0.00863	0.00746	0.00948	0.00703	0.00259	0.00465	0.00228
Vinyl Chloride	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-13 08/18/05	DRW-13 03/06/06	DRW-13 09/13/06	DRW-13 01/12/07	HCF-01 03/08/04	HCF-01 08/11/04	HCF-02 01/18/07	HCF-02 10/04/07	HCF-03 05/18/05	HCF-03 08/23/05	HCF-03 03/06/06	HCF-03 10/09/07	HCF-03 04/22/08	HCF-03 09/08/08
Explosives														
2,4,6-TRINITROTOLUENE	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	0.0342 [0.00925]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
2,6-DNT / 2,4-DNT	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	0.0142 [0.0513]	<0.000500 [<0.000500]
2-Amino-4,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA	NA
2-NITROTOLUENE	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	0.329 [0.129]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
3-NITROTOLUENE	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
4-Amino-2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	0.00137	NA	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	0.0185 [<0.000500]	<0.000500 [<0.000500]
4-NITROTOLUENE	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
RDX	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
TETRYL	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	0.0120 [<0.000500]	<0.000500 [<0.000500]
Metals														
ALUMINUM	<0.0300	<0.0300	NA	NA	<0.100	<0.100	NA	NA	0.0860 [0.0920]	<0.0300 [0.0550]	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	<0.0500 [<0.0500]	<0.0200 [<0.0200]	<0.0200 [<0.0200]
ARSENIC	<0.00500	<0.00500	NA	NA	<0.0100	<0.00500	NA	<0.00500	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.0100 [<0.0100]
BARIUM	0.019	0.015	NA	NA	<0.100	0.029	NA	0.011	0.496 [0.623]	2.37 [2.81]	NA	0.157 [0.149]	0.0810 [0.0900]	0.0580 [0.0570]
BERYLLIUM	<0.00250	<0.00250	NA	NA	<0.00250	<0.00250	NA	<0.00250	<0.00250 [<0.00250]	<0.00250 [<0.00250]	NA	<0.00250 [<0.00250]	<0.00200 [<0.00200]	<0.00200 [<0.00200]
BORON	1.79	2.15	NA	NA	5.98	6.14	NA	NA	5.20 [5.70]	6.23 [6.13]	NA	NA	NA	NA
CADMIUM	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00500	<0.00100	<0.00100	<0.00200	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00200 [<0.00200]	<0.00100 [<0.00100]	<0.00200 [<0.00200]
CALCIUM METAL	NA	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.095	0.172	NA	0.00900 [<0.00500]	<0.0100	0.006	<0.00500	<0.00500	0.0370 [0.0390]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	0.00200 [0.00500]	<0.00500 [<0.00500]
COBALT	<0.00500	<0.00500	NA	NA	<0.0200	<0.00500	NA	<0.00500	<0.0200 [<0.0200]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00200 [<0.00200]	<0.00200 [<0.00200]
COPPER	0.04	<0.00500	NA	<0.00500 [<0.00500]	<0.0125	0.045	<0.00500	<0.00500	0.0110 [0.0110]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Hexavalent Chromium	0.57	NA	NA	NA	0.034	<0.0100	NA	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	NA	NA	NA
Iron	0.372	0.689	NA	NA	0.179	0.537	NA	NA	3.38 [6.96]	0.399 [0.443]	NA	NA	NA	NA
LEAD	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.00500	<0.0100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
LITHIUM	NA	0.242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	472	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	<0.0250	<0.00500	NA	NA	0.452	0.967	NA	NA	0.241 [0.235]	0.0740 [0.0750]	NA	NA	NA	NA
MERCURY	<0.000200	<0.000200	NA	NA	<0.000200	<0.000200	NA	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	NA	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]
MOLYBDENUM	0.152	0.212	NA	NA	0.329	0.526	NA	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	NA	NA	NA	NA
NICKEL	0.622	0.279	NA	NA	<0.0250	0.02	NA	0.006	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [0.00600]
POTASSIUM	NA	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.043	<0.0100	NA	NA	<0.0500	<0.0100	NA	<0.0200	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0200 [<0.0200]	<0.0100 [<0.0100]	<0.0200 [<0.0200]
SILVER	<0.00200	<0.00200	NA	<0.00200 [<0.00200]	<0.0125	<0.00300	<0.00200	<0.00500	<0.00200 [<0.00200]	<0.00200 [<0.00200]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
SODIUM	NA	1,190	NA	1,210 [1,320]	NA	NA	2,180	NA	NA	NA	NA	NA	NA	NA
STRONTIUM	10.7	13	NA	NA	5.08	5.48	NA	NA	9.45 [10.2]	3.53 [3.52]	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	<0.0500 [<0.0500]	<0.0200 [<0.0200]	<0.0500 [<0.0500]
TIN	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	NA	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.100 [<0.100]
Total Cyanide	NA	<0.0100	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.0100 [<0.0100]	NA	NA
VANADIUM (FUME OR DUST)	<0.00500	0.013	NA	NA	<0.0250	0.03	NA	0.005	0.0410 [0.0400]	<0.00500 [0.0200]	NA	0.0270 [0.0250]	0.0140 [0.0140]	0.0170 [0.0170]
ZINC	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.0250	0.013	<0.00500	<0.0100	0.0490 [0.0950]	<0.00500 [<0.00500]	NA	<0.0100 [<0.0100]	<0.00700 [<0.00700]	<0.00500 [<0.00500]
Metals-Dissolved														
Aluminum, Dissolved	<0.0300	<0.0300	NA	NA	<0.0500	<0.0500	NA	NA	<0.0500 [<0.0500]	<0.0300 [<0.0300]	NA	NA	NA	NA
Arsenic, Dissolved	<0.00500	<0.00500	NA	NA	<0.0100	<0.00500	NA	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	NA	NA	NA
Barium, Dissolved	0.015	0.015	NA	NA	<0.100	0.025	NA	NA	0.469 [0.620]	2.18 [2.26]	NA	NA	NA	NA
Beryllium, Dissolved	<0.00250	<0.00250	NA	NA	<0.00250	0.004	NA	NA	<0.00250 [<0.00250]	<0.00250 [<0.00250]	NA	NA	NA	NA
Boron, Dissolved	1.59	2.04	NA	NA	5.96	6.4	NA	NA	4.87 [5.00]	5.21 [5.30]	NA	NA	NA	NA
Cadmium, Dissolved	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.0250	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	NA	NA	NA
Calcium, Dissolved	555	514	NA	NA	259	311	NA	NA	145 [145]	80.5 [79.2]	NA	NA	NA	NA
Chromium, Dissolved	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.0100	<0.00500	<0.00500	NA	0.0370 [0.0320]	<0.00500 [<0.00500]	NA	NA	NA	NA
Cobalt, Dissolved	<0.00500	<0.00500	NA	NA	<0.0250	<0.00500	NA	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	NA	NA	NA	NA
Copper, Dissolved	0.031	<0.0125	NA	<0.0125 [<0.0125]	<0.0125	<0.0125	<0.0125	NA	<0.0125 [<0.0125]	<0.0125 [<0.0125]	NA	NA	NA	NA
Iron, Dissolved	<0.0100	<0.0100	NA	NA	0.111	0.196	NA	NA	0.0110 [0.0210]	<0.0100 [<0.0100]	NA	NA	NA	NA
Lead, Dissolved	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.0100	<0.00500	<0.00500	NA	<0.0100 [<0.0100]	<0.00500 [<0.00500]	NA	NA	NA	NA
Lithium, Dissolved	0.5	0.234	NA	NA	0.36	NA	NA	NA	0.865 [0.815]	0.396 [0.396]	NA	NA	NA	NA
Magnesium, Dissolved	366	494	NA	NA	275	349	NA	NA	309 [297]	222 [217]	NA	NA	NA	NA
Manganese, Dissolved	<0.0250	<0.00500	NA	NA	0.428	0.929	NA	NA	0.240 [0.221]	0.0630 [0.0630]	NA	NA	NA	NA
Molybdenum, Dissolved	0.12	0.206	NA	NA	0.309	0.443	NA	NA	<0.0500 [<0.0500]	<0.0500 [<0.0500]	NA	NA	NA	NA
Nickel, Dissolved	0.404	0.279	NA	NA	<0.0250	0.014	NA	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	NA	NA	NA	NA
Potassium, Dissolved	84.4	87.9	NA	NA	85.7	108	NA	NA	88.1 [69.1]	70.0 [65.8]	NA	NA	NA	NA
Selenium, Dissolved	<0.0100	<0.0100	NA	NA	<0.0500	<0.0100	NA	NA	<0.0500 [<0.0500]	<0.0100 [<0.0100]	NA	NA	NA	NA
Silver, Dissolved	<0.00200	<0.00200	NA	<0.00200 [<0.00200]	<0.0130	<0.00300	<0.00200	NA	<0.0130 [<0.0130]	<0.00200 [<0.00200]	NA	NA	NA	NA
Sodium, Dissolved	759	1,160	NA	1,120 [1,100]	1,430	1,880	2,000	NA	500 [506]	451 [467]	NA	NA	NA	NA
Strontium, Dissolved	8.67	12.2	NA	NA	4.95	5.2	NA	NA	8.98 [9.38]	3.25 [3.23]	NA	NA	NA	NA
Tin, Dissolved	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	NA	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	NA	NA	NA
Vanadium, Dissolved	0.012	0.009	NA	NA	<0.0250	0.024	NA	NA	0.0400 [0.0330]	<0.00500 [0.0160]	NA	NA	NA	NA

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-13 08/18/05	DRW-13 03/06/06	DRW-13 09/13/06	DRW-13 01/12/07	HCF-01 03/08/04	HCF-01 08/11/04	HCF-02 01/18/07	HCF-02 10/04/07	HCF-03 05/18/05	HCF-03 08/23/05	HCF-03 03/06/06	HCF-03 10/09/07	HCF-03 04/22/08	HCF-03 09/08/08
Zinc, Dissolved	0.014	<0.0100	NA	<0.00500 [<0.00500]	<0.0250	0.01	<0.00500	NA	<0.0250 [<0.0250]	<0.00500 [<0.00500]	NA	NA	NA	NA
Parameters														
ALKALINITY	168	196	NA	146 [146]	344	284	1,190	1,160	2,270 [2,180]	1,920 [1,940]	NA	1,980 [1,970]	1,830 [1,820]	1,540 [1,480]
Alkalinity, Bicarbonate	168	196	NA	146 [146]	344	284	1,190	1,160	2,270 [2,180]	1,920 [1,940]	NA	1,980 [1,970]	1,830 [1,820]	1,540 [1,480]
Alkalinity, Carbonate	<1.00	<1.00	NA	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	NA	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]
Ammonia	<1.00	<1.00	NA	<1.00 [<1.00]	<1.00	<1.00	<1.00	NA	<1.00 [<1.00]	1.34 [1.12]	NA	NA	NA	NA
Bromide	<0.200	0.74	NA	<1.00 [<1.00]	<0.200	<0.200	<1.00	1.11	<0.200 [<0.200]	<0.200 [<0.200]	NA	0.510 [0.520]	NA	NA
Chloride (CL)	663	916	NA	664 [720]	559	558	912	942	136 [133]	114 [117]	NA	166 [168]	98.1 [102]	109 [119]
CONDUCTIVITY	7.97	9.86	13.3	8.28 [8.28]	9.14	9.87	11.4	10.1	5.32 [5.32]	3.55 [3.55]	3.69 [3.69]	4.17	3.85	5.10 [5.10]
CONDUCTIVITY	7,780	9,770	NA	7,860 [7,950]	9,620	9,060	11,600	11,700	4,810 [4,780]	3,690 [3,670]	NA	4,900 [4,940]	4,460 [4,520]	4,720 [4,600]
Dissolved Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	4.35	4.49	NA	4.61 [4.75]	3.97	3.95	4.88	4.88	1.82 [1.70]	1.42 [1.44]	NA	1.69 [1.68]	0.800 [0.820]	0.790 [0.810]
Hydroxide Alkalinity	<1.00	<1.00	NA	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	NA	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]
Nitrate	23.7	33.3	NA	24.6 [25.5]	8.97	15.4	4.35	NA	<0.100 [<0.100]	<0.100 [<0.100]	NA	NA	NA	NA
Nitrate + Nitrite	NA	NA	NA	NA	NA	NA	NA	12.7	NA	NA	NA	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [0.541]
Nitrite	<0.100	<0.100	NA	<1.00 [<1.00]	<0.100	<0.100	2.45	NA	6.17 [8.65]	<0.100 [<0.100]	NA	NA	NA	NA
PERCHLORATE	NA	<0.00500	<0.0100	NA	NA	NA	NA	NA	NA	NA	0.0210 [0.0220]	NA	NA	NA
pH	7.69	7.8	7.76	7.85 [7.88]	7.47	7.29	6.59	6.56	7.51 [7.35]	7.70 [7.70]	6.87 [6.87]	7.02 [7.01]	7.15 [7.21]	6.87 [6.90]
Phosphorus	0.062	<0.0500	NA	<0.0500 [<0.0500]	<0.0500	<0.0500	<0.0500	NA	0.245 [0.271]	0.226 [0.314]	NA	NA	NA	NA
SILICA	31.5	28	NA	NA	36.8	31	NA	NA	41.2 [48.2]	49.4 [50.1]	NA	NA	NA	NA
Silica, Dissolved	27.1	27.5	NA	NA	35	37.8	NA	NA	40.8 [47.6]	48.1 [48.0]	NA	NA	NA	NA
Sulfate	3,590	4,700	NA	3,780 [4,030]	4,380	4,820	5,190	5,440	548 [519]	69.3 [72.6]	NA	904 [972]	967 [1,020]	1,360 [1,500]
Temperature	26.3	24.1	22.3	19.1 [19.1]	24.4	23.8	17	27.4	25.5 [25.5]	26.2 [26.2]	20.5	24.6	22.9	22.9
TKN	5.32	<4.00	NA	NA	<4.00	<4.00	NA	NA	<4.00 [5.32]	5.60 [4.20]	NA	NA	NA	NA
Total Dissolved Solids	6,760	8,880	NA	7,220 [7,450]	8,260	8,730	11,600	11,400	3,520 [3,610]	2,600 [2,440]	NA	3,960 [3,850]	3,200 [3,490]	3,900 [3,960]
TOTAL ORGANIC CARBON	1.93	3	0.91	<1.00 [<1.00]	4.37	2.87	12.2	16.3	NA	102 [92.0]	81.0 [78.0]	116 [106]	72.3 [70.0]	NA
SVOCs														
1,2,3-TRICHLOROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2,4,5-TETRACHLOROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2,4-TRICHLOROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2,4-TRIMETHYLBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [0.0104]	<0.00100 [0.0100]	NA	0.0323 [0.0322]	0.0190 [0.0176]	0.0223 [0.0216]
1,2-BENZPHENANTHRACENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,3,5-Trimethylbenzene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00446 [0.00438]
1,3,5-TRINITROBENZENE	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
1,4-DICHLOROBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]
1-Chloronaphthalene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1-Methylnaphthalene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	0.0733	0.0816	0.0653	0.0297	0.0947 [0.0780]	0.0802 [0.131]	NA	0.440 [0.188]	0.658 [0.261]	0.145 [0.113]
1-NAPHTHYLAMINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4,5-TRICHLOROPHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4,6-Trichlorophenol	<0.0100	<0.0100	NA	<0.0100 [<0.0100]	<5.00	<5.00	<0.0100	<0.0100	<0.00500 [<0.00500]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
2,4-DICHLOROPHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4-DIMETHYLPHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	0.0199 [0.0156]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4-DINITROPHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<20.0	<20.0	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,4-DINITROTOLUENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2,6-DICHLOROPHENOL	<0.0100	<0.0100	NA	<0.0100 [<0.0100]	<5.00	<5.00	<0.0100	<0.0100	<0.00500 [<0.00500]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
2,6-DINITROTOLUENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Butoxy Ethanol	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-CHLOROPHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Methyl pyridine	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Methyl-4,6-Dinitrophenol	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-METHYLNAPHTHALENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	0.0839	0.0917	0.0269	0.00746	0.0970 [0.0799]	0.0859 [0.140]	NA	0.551 [0.233]	0.707 [0.308]	0.157 [0.123]
2-Methylphenol	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-Naphthylamine	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-NITROANILINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-NITROPHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3,3'-DICHLOROBENZIDINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3-METHYLCHLORANTHRENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
3-Methylphenol	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-Aminobiphenyl	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	0.0108 [<0.00500]	0.0161 [0.00539]	<0.00500 [<0.00500]
4-BROMOPHENYL PHENYL ETHER	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-Chloro-3-methylphenol	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-CHLOROPHENYL PHENYL ETHER	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-CHLOROTOLUENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
4-DIMETHYLAMINOAZOBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-13 08/18/05	DRW-13 03/06/06	DRW-13 09/13/06	DRW-13 01/12/07	HCF-01 03/08/04	HCF-01 08/11/04	HCF-02 01/18/07	HCF-02 10/04/07	HCF-03 05/18/05	HCF-03 08/23/05	HCF-03 03/06/06	HCF-03 10/09/07	HCF-03 04/22/08	HCF-03 09/08/08
4-Methyl Phenol	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
4-NITROPHENOL	<0.0250	<0.0250	NA	<0.0250 [<0.0250]	<5.00	<5.00	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
7,12-DIMETHYLBENZ(A)ANTHRACENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
a,a-Dimethylphenethylamine	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Acenaphthene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [0.00674]	<0.00500 [<0.00500]	NA	0.0280 [0.0103]	0.0373 [0.0137]	0.00813 [0.00643]
ACENAPHTHYLENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ACETOPHENONE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Aniline	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ANTHRACENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	0.0201	<0.00500	0.00754 [0.00589]	<0.00500 [<0.00500]	NA	0.113 [0.0410]	0.151 [0.0459]	<0.00500 [<0.00500]
BENZIDINE	<0.0250	<0.0250	NA	<0.0250 [<0.0250]	<15.0	<15.0	<0.0250	<0.0250	<0.0100 [<0.0100]	<0.0250 [<0.0250]	NA	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]
Benzo(a)anthracene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(a)pyrene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(b)fluoranthene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(g,h,i)perylene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Benzo(k)fluoranthene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZOIC ACID	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<20.0	<20.0	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZYL ALCOHOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BENZYL BUTYL PHTHALATE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
bis (2-chloroethoxy) methane	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
bis(2-Chloroethyl) ether	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BIS(2-ETHYLHEXYL)PHTHALATE	<0.0500	<0.00500	NA	<0.00500 [<0.00500]	<10.0	<10.0	<0.00500	<0.00500	<0.0100 [<0.0100]	<0.0500 [<0.0500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
CHLOROPHENOLS	<0.0100	<0.0100	NA	<0.0100 [<0.0100]	<5.00	<5.00	<0.0100	<0.0100	<0.00500 [<0.00500]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
CYMENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00453 [0.00462]
Dibenz(a,h)anthracene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIBENZ[A,J]ACRIDINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIBENZOFURAN	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	0.00779	0.00871	0.0072	<0.00500	0.0132 [0.0101]	<0.00500 [0.0165]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.0159 [0.0130]
DIETHYL PHTHALATE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIMETHYL PHTHALATE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Di-n-butyl phthalate	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	0.00583	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Di-n-octyl phthalate	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
DIPHENYLAMINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	0.0308 [<0.00500]	0.0439 [<0.00500]	0.00747 [<0.00500]
Diphenylhydrazine	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ETHYL METHANESULFONATE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
FLUORANTHENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
FLUORENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [0.00785]	<0.00500 [<0.00500]	NA	0.0487 [0.0185]	0.0636 [0.0250]	0.0145 [0.0112]
HEXACHLORO-1,3-BUTADIENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLOROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLOROCYCLOPENTADIENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
HEXACHLOROETHANE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
Indeno(1,2,3-cd)pyrene	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
m,p-Cresol	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	NA	<5.00	<0.00500	<0.00500	0.0056	<0.00500 [0.00670]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
M-DICHLOROBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]
METHANAMINE, N-METHYL-N-NITROSO	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
METHYL METHANESULFONATE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
NITROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.000500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.000500 [<0.00500]	<0.000500 [<0.00500]	<0.00500 [<0.00500]
N-NITROSODI-N-BUTYLAMINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
n-Nitrosodi-n-propylamine	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
N-NITROSOPIPERIDINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	<0.000500	<0.000500	NA	NA	<0.000500	0.00287	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
P-CHLOROANILINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PENTACHLOROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PENTACHLORONITROBENZENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PENTACHLOROPHENOL	<0.0100	<0.0100	NA	<0.0100 [<0.0100]	<5.00	<5.00	<0.0100	<0.0100	<0.00500 [<0.00500]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
PHENACETIN	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PHENANTHRENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	0.00717	0.0113	<0.00500	<0.00500	0.0248 [0.0185]	0.00860 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.0248 [0.0171]
PHENOL	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
P-NITROANILINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PROPYZAMIDE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
PYRENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	0.00970 [<0.00500]	0.0114 [<0.00500]	<0.00500 [<0.00500]
PYRIDINE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
TPHs														
DRO	<50.0	<50.0	NA	<5.00 [<5.00]	<50.0	16.2	<5.00	<5.00	18.4 [25.0]	9.91 [10.5]	NA	410 [324]	9.18 [12.4]	266 [124]
GRO	<0.100	<0.100	NA	<0.100 [<0.100]	<0.100	<0.100	0.454	0.208	1.77 [<0.100]	0.500 [0.499]	NA	3.73 [1.55]	0.944 [1.17]	0.670 [0.913]
VOCs														
1,1,1,2-TETRACHLOROETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1,1-Trichloroethane	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	DRW-13 08/18/05	DRW-13 03/06/06	DRW-13 09/13/06	DRW-13 01/12/07	HCF-01 03/08/04	HCF-01 08/11/04	HCF-02 01/18/07	HCF-02 10/04/07	HCF-03 05/18/05	HCF-03 08/23/05	HCF-03 03/06/06	HCF-03 10/09/07	HCF-03 04/22/08	HCF-03 09/08/08
1,1,2,2-TETRACHLOROETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1,2-TRICHLOROETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1-DICHLOROETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	0.0734	0.0674	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00124 [0.00120]
1,1-DICHLOROETHYLENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,1-Dichloropropene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2,3-Trichloropropane	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<0.00200	<0.00200	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200 [<0.00200]	<0.00200 [<0.00200]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
1,2-Dibromoethane	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,2-DICHLOROBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]
1,2-DICHLOROETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [0.00136]
1,2-Dichloropropane	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,3-DICHLOROPROPANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
1,4-Dioxane	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
2-butanone	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-CHLOROETHYL VINYL ETHER	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
2-CHLOROTOLUENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
ACETONE	<0.0100	<0.0100	NA	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
ACRYLONITRILE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	0.00292	0.00152	0.0332	0.0246	0.0220 [0.0248]	0.0500 [0.0485]	NA	0.0337 [0.0366]	0.0499 [0.0488]	0.0398 [0.0414]
BIS(2-CHLOROISOPROPYL)ETHER	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<5.00	<5.00	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
BROMOBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BROMODICHLOROMETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
BROMOMETHANE	<0.00100	<0.00100	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
CARBON DISULFIDE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CARBON TETRACHLORIDE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CFC-11	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CFC-12	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROBROMOMETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLORODIBROMOMETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROFORM	0.00346	0.00232	NA	0.00380 [0.00389]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
CHLOROMETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
cis-1,2-Dichloroethene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
cis-1,3-Dichloropropene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
DIBROMOMETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
DICHLOROMETHANE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ETHYLBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	0.00175	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [0.0100]	0.00465 [0.00573]
Iodomethane	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	0.00631	0.00668	0.00153	0.00477	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	0.0115 [0.0119]	0.0100 [0.0138]
m,p-Xylene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
M-DINITROBENZENE	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]
METHYL N-BUTYL KETONE	<0.00100	<0.00100	NA	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]
METHYLBENZENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
MTBE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	0.0102	0.00963	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
NAPHTHALENE	<0.00500	<0.00500	NA	<0.00500 [<0.00500]	0.0703	0.0324	0.037	0.0509	0.0534 [0.153]	0.0508 [0.132]	NA	0.0654 [0.159]	0.166 [0.162]	0.161 [0.183]
n-Butylbenzene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	0.00125	0.00168	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00274 [0.00262]
n-Propylbenzene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	0.0017	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	0.0104 [0.0102]	0.00812 [0.0110]
o-Xylene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	0.00239	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00428 [0.00485]
sec-Butylbenzene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	0.00486	0.00615	<0.00100	0.00173	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00361 [0.00413]
STYRENE (MONOMER)	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TERT-BUTYL ALCOHOL	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TETRACHLOROETHENE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
trans-1,2-Dichloroethene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
trans-1,3-Dichloropropene	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TRANS-1,4-DICHLOROBUTENE	<0.0100	<0.0100	NA	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]
TRIBOMOMETHANE	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
TRICHLOROETHYLENE	0.0013	0.00229	NA	0.00110 [0.00115]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]
Vinyl Chloride	<0.00100	<0.00100	NA	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	NA	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	HCF-05 03/04/04	HCF-05 08/18/04	HCF-07 03/04/04	HCF-07 08/17/04	HMW-10 01/11/07	HMW-10 03/27/08	HMW-10 08/07/08	HMW-13 02/09/04	HMW-13 07/29/04	HMW-13 04/08/05	HMW-13 08/11/05	HMW-13 02/22/06	HMW-13 08/29/06	HMW-13 09/24/07
Explosives														
2,4,6-TRINITROTOLUENE	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	0.0546	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	0.0251	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
2-Amino-4,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA
2-NITROTOLUENE	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	0.0563	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500
4-NITROTOLUENE	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
RDX	<0.000500 [<0.000500]	0.0846 [0.0523]	<0.000500	0.0749	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
Metals														
ALUMINUM	0.150 [<0.100]	<0.100 [<0.100]	<0.100	<0.100	NA	NA	NA	0.144 [<0.100]	<0.100	2.93 [0.338]	0.058	0.672	<0.0300	NA
ANTIMONY	NA	NA	NA	NA	NA	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	<0.0500
ARSENIC	0.0220 [0.0220]	<0.00500 [<0.00500]	<0.0100	<0.00500	NA	<0.00500	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.00500	<0.00500	<0.0100	<0.00500
BARIUM	<0.100 [<0.100]	0.0150 [0.0200]	<0.100	0.053	NA	0.008	0.013	<0.100 [<0.100]	<0.100	0.0400 [0.0180]	0.012	0.026	0.016	0.034
BERYLLIUM	0.00500 [0.00500]	<0.00250 [<0.00250]	<0.00250	<0.00250	NA	<0.00200	<0.00200	<0.00250 [<0.00250]	<0.00250	0.00300 [<0.00250]	<0.00250	0.009	<0.00250	<0.00250
BORON	9.18 [9.21]	4.96 [6.30]	6.47	5.57	NA	NA	NA	2.89 [2.94]	3.76	3.92 [3.72]	3.43	3.3	3.4	NA
CADMIUM	<0.00500 [<0.00500]	<0.00100 [0.00200]	<0.00500	0.002	0.003	<0.00100	<0.00200	<0.00500 [<0.00500]	<0.00500	<0.00100 [<0.00100]	<0.00100	0.007	<0.00100	<0.00200
CALCIUM METAL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	516	606	NA
Chromium	0.0340 [0.0230]	<0.00500 [<0.00500]	<0.0100	<0.00500	0.014	0.022	0.031	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	0.087	0.029	<0.0100	0.013
COBALT	<0.0200 [<0.0200]	<0.00500 [<0.00500]	<0.0200	<0.00500	NA	<0.00200	<0.00200	<0.0200 [<0.0200]	<0.0200	<0.0200 [<0.0200]	<0.00500	0.006	<0.00500	<0.00500
COPPER	0.0230 [0.0180]	<0.00500 [<0.00500]	<0.0125	0.012	<0.00500	<0.00500	<0.00500	<0.0125 [<0.0125]	<0.0125	<0.0100 [<0.0100]	0.022	0.006	<0.00500	<0.00500
Hexavalent Chromium	0.0970 [0.137]	0.0570 [0.0320]	0.093	0.051	NA	NA	NA	<0.0100 [<0.0100]	<0.0100	0.0380 [<0.0100]	0.039	NA	NA	NA
Iron	6.05 [6.00]	4.21 [5.42]	<0.0500	<0.0500	NA	NA	NA	0.121 [<0.0500]	<0.0500	2.01 [0.256]	0.111	0.377	0.08	NA
LEAD	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.0100 [<0.0100]	<0.0100	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.0100
LITHIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.846	0.422	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	443	587	NA
MANGANESE	0.262 [0.288]	0.271 [0.353]	0.114	0.131	NA	NA	NA	<0.0250 [<0.0250]	<0.0250	0.0530 [<0.0250]	<0.0250	<0.0250	<0.00500	NA
MERCURY	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200 [<0.000200]	<0.000200	<0.000200 [<0.000200]	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	0.0540 [0.0530]	<0.0500 [0.0760]	0.137	0.174	NA	NA	NA	0.168 [0.170]	<0.0500	0.171 [0.164]	0.191	0.166	0.199	NA
NICKEL	0.0740 [0.0550]	0.0710 [0.0940]	<0.0250	0.012	NA	<0.00500	<0.00500	<0.0250 [<0.0250]	<0.0250	<0.0100 [<0.0100]	<0.0100	0.02	<0.0100	<0.00500
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99.9	119	NA
SELENIUM	<0.0500 [<0.0500]	<0.0100 [<0.0100]	<0.0500	<0.0100	NA	0.132	0.1	<0.0500 [<0.0500]	<0.0500	0.0730 [0.0670]	<0.0100	0.038	0.052	<0.0200
SILVER	<0.0125 [<0.0125]	<0.00300 [<0.00300]	<0.0125	<0.00300	<0.00200	<0.00500	<0.00500	<0.0125 [<0.0125]	<0.0125	<0.00200 [<0.00200]	<0.00200	<0.00200	<0.00200	<0.00500
SODIUM	NA	NA	NA	NA	6,560	NA	NA	NA	NA	NA	NA	779	1,320	NA
STRONTIUM	3.72 [3.98]	3.00 [3.97]	4.8	5.3	NA	NA	NA	6.47 [6.46]	8.31	17.8 [17.3]	16.7	8.25	15	NA
THALLIUM	NA	NA	NA	NA	NA	<0.0200	<0.0500	NA	NA	NA	NA	NA	NA	<0.0500
TIN	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<0.0250	NA	<0.0250	<0.100	<0.0250 [<0.0250]	<0.0250	<0.0250 [<0.0250]	<0.0250	0.026	<0.0250	<0.0250
Total Cyanide	NA	NA	NA	NA	NA	NA	NA	<0.0100 [<0.0100]	NA	<0.0100 [<0.0100]	NA	<0.0100	NA	<0.0100
VANADIUM (FUME OR DUST)	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.0250	0.005	NA	0.026	0.027	<0.0250 [<0.0250]	<0.0250	0.0290 [<0.0250]	0.036	0.054	0.022	0.015
ZINC	0.0250 [<0.0250]	0.0140 [0.0130]	<0.0250	0.019	<0.00500	<0.00700	0.008	<0.0250 [<0.0250]	<0.0250	0.0120 [<0.00500]	<0.00500	0.016	0.112	<0.0100
Metals-Dissolved														
Aluminum, Dissolved	<0.0500 [<0.0500]	0.466 [0.475]	<0.0500	<0.0500	NA	NA	NA	0.0610 [<0.0500]	<0.0500	<0.0500 [<0.0500]	0.5	<0.0300	<0.0300	NA
Arsenic, Dissolved	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	NA	NA	NA	<0.0100 [<0.0100]	<0.00500	<0.0100 [<0.0100]	<0.00500	<0.00500	<0.00500	NA
Barium, Dissolved	<0.100 [<0.100]	<0.100 [<0.100]	<0.100	<0.100	NA	NA	NA	<0.0100 [<0.0100]	0.019	0.0240 [0.0180]	0.012	0.021	0.011	NA
Beryllium, Dissolved	0.00300 [0.00300]	<0.00250 [<0.00250]	<0.00250	<0.00250	NA	NA	NA	<0.00250 [<0.00250]	<0.00250	0.00300 [<0.00250]	<0.00250	0.009	<0.00250	NA
Boron, Dissolved	9.08 [9.14]	8.43 [8.44]	6.31	6.48	NA	NA	NA	2.85 [2.85]	3.43	3.58 [3.55]	3.23	3.3	2.73	NA
Cadmium, Dissolved	<0.0250 [<0.0250]	0.0430 [0.0430]	<0.0250	<0.00500	<0.00100	NA	NA	<0.00500 [<0.00500]	<0.00100	<0.00100 [<0.00100]	<0.00100	0.007	<0.00100	NA
Calcium, Dissolved	131 [131]	200 [197]	192	207	NA	NA	NA	442 [439]	514	514 [508]	373	486	515	NA
Chromium, Dissolved	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	NA	NA	<0.0100 [<0.0100]	<0.00500	<0.0100 [<0.0100]	0.08	0.024	<0.00500	NA
Cobalt, Dissolved	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<0.0250	NA	NA	NA	<0.0250 [<0.0250]	<0.00500	<0.0250 [<0.0250]	<0.00500	0.005	<0.00500	NA
Copper, Dissolved	<0.0125 [<0.0125]	0.0870 [0.0890]	<0.0125	<0.0125	<0.0125	NA	NA	<0.0125 [<0.0125]	<0.0125	<0.0125 [<0.0125]	0.019	<0.0125	<0.0125	NA
Iron, Dissolved	3.63 [3.75]	5.58 [5.67]	<0.0500	<0.0500	NA	NA	NA	<0.0500 [<0.0500]	<0.0500	<0.0100 [<0.0100]	<0.0100	<0.0100	0.01	NA
Lead, Dissolved	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	NA	NA	<0.0100 [<0.0100]	<0.00500	<0.0100 [<0.0100]	<0.00500	<0.00500	<0.00500	NA
Lithium, Dissolved	0.365 [0.354]	0.343 [0.333]	0.403	0.809	NA	NA	NA	1.35 [1.33]	0.97	<0.00500 [0.880]	0.6	0.832	0.179	NA
Magnesium, Dissolved	300 [299]	370 [366]	353	414	NA	NA	NA	361 [360]	453	473 [478]	735	432	521	NA
Manganese, Dissolved	0.254 [0.275]	0.391 [0.396]	0.114	0.131	NA	NA	NA	<0.0250 [<0.0250]	<0.0250	<0.0250 [<0.0250]	<0.0250	<0.0250	<0.0250	NA
Molybdenum, Dissolved	<0.0500 [<0.0500]	0.145 [0.160]	0.1	0.158	NA	NA	NA	0.157 [0.166]	0.219	0.163 [0.159]	0.189	0.163	0.158	NA
Nickel, Dissolved	0.0470 [0.0470]	0.110 [0.114]	<0.0250	<0.0250	NA	NA	NA	<0.0250 [<0.0250]	<0.00500	<0.0250 [<0.0250]	<0.00500	<0.00500	<0.00500	NA
Potassium, Dissolved	69.1 [70.0]	82.0 [80.5]	62.6	68	NA	NA	NA	87.2 [87.1]	NA	NA	NA	113	104	NA
Selenium, Dissolved	<0.0500 [<0.0500]	<0.0500 [<0.0500]	<0.0500	<0.0500	NA	NA	NA	<0.0100 [<0.0100]	<0.0100	0.0690 [0.0620]	<0.0100	0.038	0.042	NA
Silver, Dissolved	<0.0130 [<0.0130]	<0.0130 [<0.0130]	<0.0130	<0.0130	<0.00200	NA	NA	<0.0130 [<0.0130]	<0.00300	<0.0130 [<0.0130]	<0.00200	<0.00200	<0.00200	NA
Sodium, Dissolved	1,670 [1,680]	1,710 [1,720]	2,310	1,610	7,180	NA	NA	771 [742]	NA	1,040 [1,090]	2,780	783	1,180	NA
Strontium, Dissolved	3.54 [3.50]	4.21 [4.10]	4.42	5.11	NA	NA	NA	6.41 [6.39]	8.65	16.3 [16.5]	9.58	7.87	6.16	NA
Tin, Dissolved	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<0.0250	NA	NA	NA	<0.0250 [<0.0250]	<0.0250	<0.0250 [<0.0250]	<0.0250	<0.0250	<0.0250	NA
Vanadium, Dissolved	<0.0250 [<0.0250]	0.0270 [0.0610]	<0.0250	<0.0250	NA	NA	NA	<0.0250 [<0.0250]	0.026	0.0290 [<0.0250]	0.03	0.054	0.012	NA

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	HCF-05 03/04/04	HCF-05 08/18/04	HCF-07 03/04/04	HCF-07 08/17/04	HMW-10 01/11/07	HMW-10 03/27/08	HMW-10 08/07/08	HMW-13 02/09/04	HMW-13 07/29/04	HMW-13 04/08/05	HMW-13 08/11/05	HMW-13 02/22/06	HMW-13 08/29/06	HMW-13 09/24/07
Zinc, Dissolved	<0.0250 [<0.0250]	0.343 [0.0270]	<0.0250	<0.0250	<0.00500	NA	NA	<0.0250 [<0.0250]	0.029	<0.0250 [<0.0250]	<0.00500	0.015	0.095	NA
Parameters														
ALKALINITY	2,430 [2,320]	2,510 [2,500]	1,530	1,280	368	284	248	144 [142]	148	158 [154]	150	150	143	144
Alkalinity, Bicarbonate	2,430 [2,320]	2,510 [2,500]	1,530	1,280	368	284	248	144 [142]	148	158 [154]	150	150	143	144
Alkalinity, Carbonate	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00
Ammonia	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	NA	NA	<1.00 [<1.00]	<1.00	1.85 [<1.00]	<1.00	<1.00	<1.00	NA
Bromide	0.800 [0.790]	<0.200 [<0.200]	<0.200	0.7	3.86	NA	NA	<0.200 [<0.200]	<0.200	0.650 [0.630]	<0.200	<0.200	<0.200	<0.200
Chloride (CL)	706 [698]	711 [702]	645	640	5,330	3,280	2,910	489 [500]	506	631 [682]	397	560	829	464
CONDUCTIVITY	9.85 [9.85]	8.38	9.74	7.32	28.7	21.3	20.8	7.62 [7.62]	7.12	5.63 [5.63]	6.23	7.09	7.53	6.35
CONDUCTIVITY	9,690 [9,540]	9,430 [9,370]	9,730	9,150	27,800	22,400	20,300	7,470 [7,420]	7,720	8,430 [8,230]	6,820	7,620	8,760	7,350
Dissolved Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE	<0.200 [<0.200]	<0.200 [<0.200]	<0.200	<0.200	3.37	3.05	3.05	3.95 [3.92]	3.68	3.67 [3.71]	4.08	5.07	4.75	3.9
Hydroxide Alkalinity	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00
Nitrate	<0.100 [<0.100]	<0.100 [10.7]	9.07	10.9	NA	NA	NA	22.2 [22.0]	26	30.7 [32.3]	16.6	30.6	34.8	NA
Nitrate + Nitrite	NA	NA	NA	NA	191	<0.100	629	NA	NA	NA	NA	NA	NA	50.9
Nitrite	<0.100 [<0.100]	<0.100 [<0.100]	<0.100	<0.100	NA	NA	NA	<0.100 [<0.100]	<0.100	<0.100 [<0.100]	<0.100	<0.200	<0.200	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	<0.00500	NA
pH	7.04 [7.04]	7.01 [7.03]	7.23	7.02	7.28	7.34	7.43	7.60 [7.60]	7.64	7.51 [7.61]	7.47	7.58	8.07	7.39
Phosphorus	0.0870 [0.0820]	<0.0500 [<0.0500]	0.143	0.09	<0.0500	NA	NA	<0.0500 [<0.0500]	NA	0.0600 [<0.0500]	<0.0500	<0.0500	<0.0500	NA
SILICA	52.0 [50.2]	30.0 [39.1]	34.8	32.4	NA	NA	NA	25.0 [24.0]	23.6	29.2 [23.8]	18.7	27.3	26.4	NA
Silica, Dissolved	47.5 [47.9]	48.7 [49.3]	32.7	37.6	NA	NA	NA	24.2 [23.8]	24.5	23.7 [23.3]	18.2	25.1	19	NA
Sulfate	2,740 [2,820]	2,800 [2,800]	3,320	3,900	11,700	9,920	9,000	3,860 [3,970]	3,830	4,490 [4,840]	3,750	4,050	5,220	4,130
Temperature	18.8 [18.8]	23.8	20.6	23.6	21	23.3	24.8	19.7 [19.7]	25.5	19.9 [19.9]	23.2	18.7	22.3	22.7
TKN	5.04 [<4.00]	<4.00 [<4.00]	<4.00	<4.00	NA	NA	NA	<4.00 [<4.00]	<4.00	<4.00 [<4.00]	<4.00	<4.00	<4.00	NA
Total Dissolved Solids	7,400 [7,400]	7,640 [7,680]	8,020	7,970	27,500	21,300	18,900	6,910 [6,900]	7,350	7,610 [7,620]	6,590	6,430	7,190	6,960
TOTAL ORGANIC CARBON	29.6 [31.6]	23.5 [22.9]	32.2	9.85	2.51	2.74	NA	1.45 [1.82]	<1.00	1.09 [1.14]	10.7	1.2	1.3	1.75
SVOCs														
1,2,3-TRICHLOROBENZENE	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	0.0301 [0.0296]	0.0133 [0.0134]	0.0955	0.0685	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	0.115	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	<0.00100 [0.00590]	<0.00100 [<0.00100]	0.0276	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	<0.00100 [<5.00]	<0.00100 [<5.00]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100 [<5.00]	<0.00100	<0.00500 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	9.09 [7.52]	0.260 [0.600]	0.116	26.6	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	<20.0 [<20.0]	<20.0 [<20.0]	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<20.0 [<20.0]	<20.0	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	11.7 [9.58]	0.250 [0.694]	0.122	26.3	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	<5.00 [<5.00]	NA	<5.00	NA	NA	NA	NA	<5.00 [<5.00]	NA	<0.00500 [<0.00500]	NA	NA	NA	NA
3-NITROANILINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	HCF-05 03/04/04	HCF-05 08/18/04	HCF-07 03/04/04	HCF-07 08/17/04	HMW-10 01/11/07	HMW-10 03/27/08	HMW-10 08/07/08	HMW-13 02/09/04	HMW-13 07/29/04	HMW-13 04/08/05	HMW-13 08/11/05	HMW-13 02/22/06	HMW-13 08/29/06	HMW-13 09/24/07
4-Methyl Phenol	<5.00 [<5.00]	NA	<5.00	NA	NA	NA	NA	<5.00 [<5.00]	NA	<0.00500 [<0.00500]	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<5.00 [<5.00]	<5.00	<0.0250 [<0.0250]	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	0.760 [0.697]	0.0145 [0.0448]	0.00673	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	<5.00 [<5.00]	0.00594 [0.0208]	<5.00	0.316	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	<15.0 [<15.0]	<15.0 [<15.0]	<15.0	<15.0	<0.0250	<0.0250	<0.0250	<15.0 [<15.0]	<15.0	<0.0100 [<0.0100]	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	<20.0 [<20.0]	<20.0 [<20.0]	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<20.0 [<20.0]	<20.0	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	<10.0 [<10.0]	<10.0 [<10.0]	<10.0	<10.0	<0.00500	<0.00500	<0.00500	<10.0 [<10.0]	<10.0	<0.0100 [<0.0100]	<0.0500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.0100	<0.0100	<0.0100	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.0058	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	<5.00 [<5.00]	<5.00 [<5.00]	0.0128	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	1.02 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	1.40 [<5.00]	0.0292 [0.0953]	0.0118	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	<0.00500 [<5.00]	<0.00500 [<5.00]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	NA	<5.00 [<5.00]	NA	<5.00	<0.00500	<0.00500	<0.00500	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	<0.00100 [<5.00]	<0.00100 [<5.00]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100 [<5.00]	<0.00100	<0.00500 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<0.000500	<0.00500	<0.000500	<0.00500	<5.00 [<5.00]	<0.000500	<0.00500 [<0.00500]	<0.000500	<0.00500	<0.00500	<0.000500
N-NITROSODI-N-BUTYLAMINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	<0.000500 [<0.000500]	0.396 [0.334]	<0.000500	0.129	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
P-CHLOROANILINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.0100	<0.0100	<0.0100	0.00938 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	2.79 [2.56]	0.0471 [0.159]	0.0148	3.75	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	0.378 [<5.00]	<5.00 [<5.00]	<5.00	0.323	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
TPHs														
DRO	24.7 [48.1]	<50.0 [<50.0]	285	<50.0	<5.00	<5.00	<5.00	<50.0 [<50.0]	<50.0	<50.0 [<50.0]	<50.0	<50.0	<5.00	<5.00
GRO	1.41 [0.392]	0.226 [0.249]	0.956	0.211	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100
VOCs														
1,1,1,2-TETRACHLOROETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100

Table E.19.Attachment 4
Saturated Vadose Zone Soil Water Risk Assessment Dataset
Solid Waste Management Unit 154
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	HCF-05 03/04/04	HCF-05 08/18/04	HCF-07 03/04/04	HCF-07 08/17/04	HMW-10 01/11/07	HMW-10 03/27/08	HMW-10 08/07/08	HMW-13 02/09/04	HMW-13 07/29/04	HMW-13 04/08/05	HMW-13 08/11/05	HMW-13 02/22/06	HMW-13 08/29/06	HMW-13 09/24/07
1,1,2,2-TETRACHLOROETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	0.0230 [0.0214]	0.0157 [0.0155]	0.0495	0.064	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	0.00112 [0.00109]	0.00177	<0.00100	<0.00100	0.00104
1,1-DICHLOROETHYLENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00200 [<0.00200]	<0.00200	<0.00200	<0.00500	<0.00500
1,2-Dibromoethane	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	<0.00100 [<5.00]	<0.00100 [<5.00]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100 [<5.00]	<0.00100	<0.00500 [<0.00500]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	0.0267 [0.0254]	0.0387 [0.0372]	0.0346	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<5.00 [<5.00]	<5.00	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00500	<0.00500
CARBON DISULFIDE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.00935	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	0.00194	0.00302	0.00349	0.00103 [<0.00100]	0.00107	0.00135 [0.00136]	0.00188	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	<0.00100 [0.00900]	<0.00100 [<0.00100]	0.0058	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	<0.00100 [0.00595]	<0.00100 [<0.00100]	0.0094	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500	<0.000500	NA	<0.000500	NA	<0.000500 [<0.000500]	<0.000500	<0.000500 [<0.000500]	<0.000500	<0.000500	<0.000500	<0.000500
METHYL N-BUTYL KETONE	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00500	<0.00500
METHYLBENZENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	0.00592	<0.00100	<0.00100	<0.00100
MTBE	<0.00100 [0.00500]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	0.0983 [1.76]	0.110 [0.133]	0.0618	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<5.00]	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	<0.00100 [0.00635]	<0.00100 [<0.00100]	0.00575	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	0.0093	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	0.0399	<0.00100	<0.00100	<0.00100
Vinyl Chloride	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100

Notes for E.21.Attachment 1
Regional Groundwater
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Notes:

< =	Result is non-detect
[ ] =	Indicates field duplicate result
ft =	Foot
mg/kg =	Milligrams per kilogram
mg/L =	Milligrams per liter
mS/cm =	microSiemens per centimeter
umhos/cm =	micromhos per centimeter
NA =	Not available
SVOC =	Semi-volatile Organic Compound
VOC =	Volatile Organic Compound
TPH =	Total Petroleum Hydrocarbons

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-14 12/11/06	DRW-14 09/24/07	DRW-14 04/18/08	DRW-14 08/27/08	DRW-15 01/12/07	DRW-16 03/03/04	DRW-16 08/10/04	DRW-16 05/05/05	DRW-16 08/17/05	DRW-16 02/28/06	DRW-16 09/12/06	DRW-16 01/12/07
Explosives													
2,4,6-TRINITROTOLUENE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	0.000525 [<0.000500]	NA
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
3-NITROTOLUENE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.000500 [<0.000500]	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	NA	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
4-NITROTOLUENE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
RDX	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
TETRYL	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
Metals													
ALUMINUM	mg/L	NA	NA	NA	NA	NA	0.125	<0.100	<0.0300 [<0.0300]	<0.0300 [0.180]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	NA
ANTIMONY	mg/L	NA	0.113	0.128 [0.0920]	0.0430 [0.0480]	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/L	NA	0.035	0.0640 [0.0460]	0.0320 [<0.0100]	NA	0.046	<0.00500	0.151 [0.292]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.104 [0.122]	NA
BARIUM	mg/L	NA	<0.0100	0.00800 [0.00800]	0.00700 [0.00700]	NA	<0.100	0.012	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA
BERYLLIUM	mg/L	NA	<0.00250	<0.00200 [<0.00200]	<0.00200 [<0.00200]	NA	0.005	<0.00250	0.00300 [0.00300]	<0.00250 [<0.00250]	<0.00250 [<0.00250]	<0.00250 [<0.00250]	NA
BORON	mg/L	NA	NA	NA	NA	NA	1.78	1.96	2.07 [2.07]	1.64 [2.16]	1.44 [1.33]	1.48 [1.37]	NA
CADMIUM	mg/L	<0.00100	<0.00200	<0.00100 [<0.00100]	<0.00200 [<0.00200]	<0.00100	0.005	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	538 [539]	553 [531]	NA
Chromium	mg/L	4.99	4.73	6.31 [4.48]	2.72 [2.58]	0.131	5.89	1.44	5.60 [12.2]	7.72 [6.01]	3.93 [4.32]	4.86 [4.60]	4.25
COBALT	mg/L	NA	<0.00500	<0.00200 [<0.00200]	<0.00200 [<0.00200]	NA	<0.0200	0.008	<0.0200 [<0.0200]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.0130 [0.0120]	NA
COPPER	mg/L	0.026	0.023	0.0290 [0.0160]	0.0100 [0.0130]	<0.00500	0.03	0.092	0.210 [0.183]	0.162 [0.270]	0.0960 [0.0640]	0.0540 [0.0510]	0.013
Hexavalent Chromium	mg/L	NA	NA	NA	NA	NA	0.386	0.37	0.0940 [0.0880]	0.528 [0.536]	NA	NA	NA
Iron	mg/L	NA	NA	NA	NA	NA	10.8	3.29	13.8 [29.1]	15.8 [11.4]	9.33 [9.88]	14.0 [12.9]	NA
LEAD	mg/L	<0.00500	<0.0100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.541 [0.539]	0.192 [0.181]	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	799 [804]	841 [801]	NA
MANGANESE	mg/L	NA	NA	NA	NA	NA	0.12	0.101	0.189 [0.180]	0.0780 [<0.0250]	<0.00500 [<0.00500]	0.209 [0.191]	NA
MERCURY	mg/L	NA	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	NA	<0.000200	<0.000200	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	<0.000200 [<0.000200]	NA
MOLYBDENUM	mg/L	NA	NA	NA	NA	NA	0.064	<0.0500	0.0600 [0.0570]	0.0770 [<0.0500]	<0.0500 [<0.0500]	0.0680 [0.0650]	NA
NICKEL	mg/L	NA	0.106	0.0690 [0.0510]	0.0840 [0.0890]	NA	0.468	0.867	0.925 [0.934]	0.276 [0.340]	0.122 [0.117]	1.02 [0.946]	NA
POTASSIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	102 [103]	76.3 [73.6]	NA
SELENIUM	mg/L	NA	0.111	0.154 [0.150]	0.136 [0.144]	NA	0.121	<0.0100	0.168 [0.154]	<0.0100 [<0.0100]	0.0980 [0.0950]	0.0630 [0.0550]	NA
SILVER	mg/L	<0.00200	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00200	<0.0125	<0.00300	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200
SODIUM	mg/L	4,620	NA	NA	NA	2,810	NA	NA	NA	NA	2,210 [2,230]	2,840 [3,000]	3,260
STRONTIUM	mg/L	NA	NA	NA	NA	NA	10.4	11.7	31.0 [30.7]	22.1 [20.3]	9.78 [9.13]	9.63 [9.04]	NA
THALLIUM	mg/L	NA	<0.0500	<0.0200 [<0.0200]	<0.0500 [<0.0500]	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/L	NA	<0.0250	<0.0250 [<0.0250]	<0.100 [<0.100]	NA	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [0.100]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA
Total Cyanide	mg/L	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	<0.0100 [<0.0100]	NA	NA
VANADIUM (FUME OR DUST)	mg/L	NA	0.038	0.0910 [0.0690]	0.0310 [0.0280]	NA	0.105	0.029	0.113 [0.302]	0.119 [0.130]	0.109 [0.126]	0.160 [0.151]	NA
ZINC	mg/L	<0.00500	<0.0100	<0.00700 [<0.00700]	<0.00500 [<0.00500]	<0.00500	<0.0250	0.018	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.0170 [0.0320]	<0.00500
Metals-Dissolved													
Aluminum, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500 [<0.0500]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	<0.0300 [<0.0300]	NA
Arsenic, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0100	<0.00500	0.0320 [0.0270]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	NA
Barium, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.100	0.011	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA
Beryllium, Dissolved	mg/L	NA	NA	NA	NA	NA	0.003	<0.00250	<0.00250 [<0.00250]	<0.00250 [<0.00250]	<0.00250 [<0.00250]	<0.00250 [<0.00250]	NA
Boron, Dissolved	mg/L	NA	NA	NA	NA	NA	1.66	1.97	1.65 [1.59]	1.29 [2.00]	1.36 [1.24]	1.45 [1.41]	NA
Cadmium, Dissolved	mg/L	0.003	NA	NA	NA	<0.00100	<0.0250	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
Calcium, Dissolved	mg/L	NA	NA	NA	NA	NA	470	528	524 [547]	609 [573]	504 [490]	609 [532]	NA
Chromium, Dissolved	mg/L	2.04	NA	NA	NA	<0.00500	0.247	0.446	0.0690 [0.0670]	0.365 [0.514]	0.629 [0.626]	0.0180 [0.0240]	0.61
Cobalt, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0250	<0.00500	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	0.00700 [0.00600]	NA
Copper, Dissolved	mg/L	<0.0125	NA	NA	NA	<0.0125	<0.0125	0.015	0.0160 [0.0150]	0.0610 [0.0400]	0.0440 [0.0430]	0.0190 [0.0180]	<0.0125
Iron, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0100 [0.0200]	0.0240 [<0.0100]	<0.0100 [<0.0100]	1.25 [0.972]	NA
Lead, Dissolved	mg/L	<0.00500	NA	NA	NA	<0.00500	<0.0100	<0.00500	<0.0100 [<0.0100]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Lithium, Dissolved	mg/L	NA	NA	NA	NA	NA	0.64	NA	0.502 [0.492]	0.380 [0.720]	0.350 [0.359]	0.205 [0.202]	NA
Magnesium, Dissolved	mg/L	NA	NA	NA	NA	NA	613	811	798 [838]	878 [830]	778 [765]	921 [798]	NA
Manganese, Dissolved	mg/L	NA	NA	NA	NA	NA	0.109	0.046	0.155 [0.152]	<0.0250 [<0.0250]	<0.00500 [<0.00500]	0.185 [0.161]	NA
Molybdenum, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500 [<0.0500]	0.0550 [0.0860]	<0.0500 [<0.0500]	0.0510 [<0.0500]	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-14 12/11/06	DRW-14 09/24/07	DRW-14 04/18/08	DRW-14 08/27/08	DRW-15 01/12/07	DRW-16 03/03/04	DRW-16 08/10/04	DRW-16 05/05/05	DRW-16 08/17/05	DRW-16 02/28/06	DRW-16 09/12/06	DRW-16 01/12/07
Nickel, Dissolved	mg/L	NA	NA	NA	NA	NA	0.452	0.583	0.720 [0.704]	0.170 [0.130]	0.0930 [0.0920]	0.900 [0.807]	NA
Potassium, Dissolved	mg/L	NA	NA	NA	NA	NA	95.7	133	102 [104]	115 [129]	101 [106]	72.1 [72.1]	NA
Selenium, Dissolved	mg/L	NA	NA	NA	NA	NA	0.118	<0.0100	0.151 [0.145]	<0.0100 [<0.0100]	0.0920 [0.0930]	0.114 [0.0940]	NA
Silver, Dissolved	mg/L	<0.00200	NA	NA	NA	<0.00200	<0.0130	<0.00300	<0.0130 [<0.0130]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200
Sodium, Dissolved	mg/L	4,030	NA	NA	NA	2,840	2,110	2,560	2,220 [2,100]	2,510 [2,650]	2,020 [1,980]	2,530 [2,560]	2,960
Strontium, Dissolved	mg/L	NA	NA	NA	NA	NA	9.6	11.7	21.4 [20.9]	10.3 [19.3]	9.70 [9.06]	9.67 [9.48]	NA
Tin, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	NA
Vanadium, Dissolved	mg/L	NA	NA	NA	NA	NA	<0.0250	0.005	<0.0250 [<0.0250]	0.0290 [<0.00500]	0.0110 [0.0110]	0.00500 [<0.00500]	NA
Zinc, Dissolved	mg/L	<0.00500	NA	NA	NA	<0.00500	<0.0250	0.01	<0.0250 [<0.0250]	<0.00500 [<0.00500]	<0.0100 [<0.0100]	0.0100 [0.00900]	<0.00500
Parameters													
ALKALINITY	mg/L	226	232	226 [230]	222 [228]	214	176	194	188 [196]	196 [198]	200 [202]	162 [176]	204
Alkalinity, Bicarbonate	mg/L	226	232	226 [230]	222 [228]	214	176	194	188 [196]	196 [198]	200 [202]	162 [176]	204
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00
Ammonia	mg/L	<1.00	NA	NA	NA	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00
Bromide	mg/L	3.59	3.57	NA	NA	<1.00	1.2	<0.200	1.17 [1.11]	<0.200 [<0.200]	1.27 [1.28]	<0.200 [<0.200]	<1.00
Chloride (CL)	mg/L	4,650	4,180	4,000 [3,990]	6,750 [5,770]	1,410	2,420	2,530	2,410 [2,440]	2,480 [2,570]	2,450 [2,480]	3,150 [3,160]	2,630
CONDUCTIVITY	mS/cm	21.2	19.8	20.0 [20.0]	21.7 [21.7]	13.3	15.9	16.1	16.7 [16.7]	15.6 [15.6]	15	16.1	16.2
CONDUCTIVITY	umhos/cm	21,000	21,200	20,600 [20,700]	20,600 [20,700]	13,200	15,400	15,600	16,000 [15,900]	16,100 [16,100]	15,800 [15,800]	16,100 [15,900]	16,100
FLUORIDE	mg/L	2.41	1.96	1.94 [2.03]	28.4 [33.3]	1.99	<0.200	<0.200	1.88 [1.89]	1.95 [1.94]	1.95 [1.91]	2.21 [2.25]	2.04
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00
Nitrate	mg/L	110	NA	NA	NA	38.7	68.4	74.1	23.4 [70.4]	73.8 [75.9]	74.1 [74.3]	86.6 [86.6]	78.8
Nitrate + Nitrite	mg/L	127	66.7	57.9 [70.3]	216 [172]	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	<1.00	NA	NA	NA	<1.00	<0.100	<0.100	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.200 [<0.200]	<1.00
PERCHLORATE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100 [<0.0100]	<0.0100 [<0.0100]	NA
pH	pH Units	7.48	7.45	7.63 [7.65]	7.34 [7.28]	7.48	7.2	7.27	7.47 [7.47]	7.24 [7.28]	7.55 [7.52]	7.05 [7.12]	7.41
Phosphorus	mg/L	<0.0500	NA	NA	NA	<0.0500	0.075	<0.0500	0.0910 [0.206]	0.103 [0.150]	<0.0500 [<0.0500]	0.119 [0.113]	0.088
SILICA	mg/L	NA	NA	NA	NA	NA	49.1	40.9	52.0 [59.7]	38.2 [47.5]	17.5 [17.7]	45.6 [42.3]	NA
Silica, Dissolved	mg/L	NA	NA	NA	NA	NA	44.8	44.9	40.0 [39.1]	31.6 [45.5]	17.0 [17.7]	38.6 [37.0]	NA
Sulfate	mg/L	9,630	7,770	7,660 [7,670]	12,300 [11,000]	6,520	6,660	6,500	6,710 [6,430]	6,270 [6,500]	6,280 [6,300]	7,030 [7,070]	3,430
Temperature	deg c	17.4	21.3	18.9	21	20.2	19.5	24	22.5 [22.5]	23.7 [23.7]	23.8	20.8	19.6
TKN	mg/L	NA	NA	NA	NA	NA	<4.00	<4.00	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [<4.00]	<4.00 [<4.00]	NA
Total Dissolved Solids	mg/L	18,700	17,600	18,700 [19,000]	19,500 [19,700]	12,900	13,600	14,200	13,700 [13,700]	14,400 [14,100]	14,200 [14,600]	13,900 [13,600]	15,500
TOTAL ORGANIC CARBON	mg/L	NA	2.62	2.11 [2.27]	NA	<1.00	2.81	<1.00	NA	4.97 [4.68]	1.30 [1.30]	2.90 [2.90]	<1.00
Pesticides/Herbicide													
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOR0PROPIONIC ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DB	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICAMBA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLORPROP	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-14 12/11/06	DRW-14 09/24/07	DRW-14 04/18/08	DRW-14 08/27/08	DRW-15 01/12/07	DRW-16 03/03/04	DRW-16 08/10/04	DRW-16 05/05/05	DRW-16 08/17/05	DRW-16 02/28/06	DRW-16 09/12/06	DRW-16 01/12/07
G-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPP	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs													
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,3,5-TRINITROBENZENE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00500]	<0.00500 [<0.00500]	<0.00100	<5.00	<0.00100	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<20.0	<20.0	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-Butoxy Ethanol	mg/L	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-Methyl pyridine	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-Methylphenol	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-Naphthylamine	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-NITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA
3-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<5.00	<5.00	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Acenaphthene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
ACETOPHENONE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Aniline	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
BENZIDINE	mg/L	<0.0250	<0.0250	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250	<15.0	<15.0	<0.0100 [<0.0100]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250 [<0.0250]	<0.0250
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-14 12/11/06	DRW-14 09/24/07	DRW-14 04/18/08	DRW-14 08/27/08	DRW-15 01/12/07	DRW-16 03/03/04	DRW-16 08/10/04	DRW-16 05/05/05	DRW-16 08/17/05	DRW-16 02/28/06	DRW-16 09/12/06	DRW-16 01/12/07
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
BENZOIC ACID	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<20.0	<20.0	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<10.0	<10.0	<0.0100 [<0.0100]	<0.0500 [<0.0500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
CHLOROPHENOLS	mg/L	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100
CYMENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
DIBENZOFURAN	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Diphenylhydrazine	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
FLUORANTHENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
FLUORENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
m,p-Cresol	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	NA	<5.00	NA	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00500]	<0.00500 [<0.00500]	<0.00100	<5.00	<0.00100	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
NITROBENZENE	mg/L	<0.00500	<0.000500	<0.000500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<5.00	<5.00	<0.00500 [<0.00500]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100
PHENACETIN	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PHENANTHRENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PHENOL	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
P-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PROPYZAMIDE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PYRENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
PYRIDINE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
TPHs													
DRO	mg/L	<5.00	<5.00	<5.00 [<5.00]	<5.00 [<5.00]	<5.00	<50.0	<50.0	<50.0 [<50.0]	<50.0 [<50.0]	<50.0 [<50.0]	<5.00 [<5.00]	<5.00
GRO	mg/L	<0.100	<0.100	<0.100 [<0.100]	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100 [<0.100]	<0.100
VOCs													
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,1-DICHLOROETHYLENE	mg/L	0.00825	0.0118	0.00894 [0.00811]	0.0114 [0.0133]	<0.00100	<0.00100	0.00685	0.00429 [0.00400]	0.00434 [0.00508]	0.00341 [0.00382]	0.00700 [0.00669]	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-14 12/11/06	DRW-14 09/24/07	DRW-14 04/18/08	DRW-14 08/27/08	DRW-15 01/12/07	DRW-16 03/03/04	DRW-16 08/10/04	DRW-16 05/05/05	DRW-16 08/17/05	DRW-16 02/28/06	DRW-16 09/12/06	DRW-16 01/12/07
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00200 [<0.00200]	<0.00500 [<0.00500]	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00500]	<0.00500 [<0.00500]	<0.00100	<5.00	<0.00100	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100 [<0.00500]	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
1,4-Dioxane	mg/L	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	0.0149 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<5.00	<5.00	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00500 [<0.00500]	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
CHLOROFORM	mg/L	0.00166	0.0018	0.00170 [0.00167]	0.00175 [0.00214]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [0.00129]	<0.00100 [<0.00100]	0.00107 [0.00103]	0.00123
CHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [0.00351]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [0.00329]	<0.00100
M-DINITROBENZENE	mg/L	NA	<0.000500	<0.000500 [<0.000500]	NA	NA	<0.000500	<0.000500	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	<0.000500 [<0.000500]	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00500 [<0.00500]	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500 [<0.00500]	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	<0.00500
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	0.00582 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100 [<0.0100]	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100
TRICHLOROETHYLENE	mg/L	0.131	0.144	0.144 [0.143]	0.171 [0.169]	0.0127	0.0683	0.104	0.0866 [0.0885]	0.110 [0.114]	0.0848 [0.0899]	0.115 [0.115]	0.119
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-16 10/03/07	DRW-16 04/02/08	DRW-16 08/22/08	DRW-17 05/05/05	DRW-17 08/16/05	DRW-17 02/23/06	DRW-17 09/11/06	DRW-17 01/11/07	DRW-17 09/27/07	DRW-17 04/02/08	DRW-17 08/14/08	HELSTF-01 12/28/06	HMW-08 11/16/04	HMW-08 10/24/05	HMW-08 12/15/06	HMW-08 12/11/07
Explosives																	
2,4,6-TRINITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
2,6-DNT / 2,4-DNT	mg/L	<0.000500 [<0.000500]	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
3-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500 [<0.000500]	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
4-NITROTOLUENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
RDX	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
TETRYL	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
Metals																	
ALUMINUM	mg/L	NA	NA	NA	<0.0300	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/L	0.0640 [<0.0500]	0.061	0.163	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0200	NA	NA	NA	NA	NA
ARSENIC	mg/L	0.0460 [<0.00500]	0.038	0.154	<0.0100	<0.00500	0.035	<0.0100	NA	<0.00500	<0.00500	<0.0100	<0.0100 [<0.0100]	NA	NA	<0.0100	NA
BARIUM	mg/L	<0.0100 [<0.0100]	0.006	0.009	<0.0100	0.011	<0.0100	<0.0100	NA	<0.0100	0.006	0.008	<0.0100 [<0.0100]	NA	NA	<0.0100	NA
BERYLLIUM	mg/L	<0.00250 [<0.00250]	<0.00200	<0.00200	<0.00250	<0.00250	<0.00250	<0.00250	NA	<0.00250	<0.00200	<0.00200	NA	NA	NA	NA	NA
BORON	mg/L	NA	NA	NA	1.64	1.85	1.32	1.42	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/L	<0.00200 [<0.00200]	<0.00100	<0.00200	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200	<0.00100 [<0.00100]	NA	NA	<0.00100	NA
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	455	480	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	2.57 [0.900]	3.1	6.32	<0.0100	<0.0100	<0.0100	0.02	0.027	0.056	0.082	0.115	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
COBALT	mg/L	<0.00500 [<0.00500]	<0.00200	0.004	<0.0200	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00200	<0.00200	NA	NA	NA	NA	NA
COPPER	mg/L	0.00600 [<0.00500]	0.02	0.02	<0.0100	<0.00500	0.014	<0.00500	<0.00500	0.006	<0.00500	<0.00500	NA	NA	NA	<0.00500	NA
Hexavalent Chromium	mg/L	NA	NA	NA	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	NA	NA	NA	0.019	0.021	<0.0100	0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/L	<0.0100 [<0.0100]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
LITHIUM	mg/L	NA	NA	NA	NA	NA	1.22	0.163	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	641	630	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/L	NA	NA	NA	0.028	0.066	0.039	<0.0250	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/L	<0.000200 [<0.000200]	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	<0.000200 [<0.000200	NA	NA	<0.000200	NA
MOLYBDENUM	mg/L	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/L	0.190 [0.135]	0.065	0.317	<0.0100	<0.0100	<0.0100	<0.00500	NA	<0.00500	0.009	0.012	NA	NA	NA	NA	NA
POTASSIUM	mg/L	NA	NA	NA	NA	NA	113	59.3	NA	NA	NA	NA	NA	NA	NA	63.5	NA
SELENIUM	mg/L	0.0970 [0.0760]	0.078	0.091	0.111	<0.0100	<0.0100	<0.0100	NA	0.066	0.063	0.08	<0.0100 [<0.0100]	NA	NA	<0.0100	NA
SILVER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00200 [<0.00200]	NA	NA	<0.00200	NA
SODIUM	mg/L	NA	NA	NA	NA	NA	2,160	2,370	2,760	NA	NA	NA	2,710 [2,560]	NA	NA	2,960	NA
STRONTIUM	mg/L	NA	NA	NA	17.8	9.76	7.31	7.11	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/L	<0.0500 [<0.0500]	<0.0200	<0.0500	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0500	NA	NA	NA	NA	NA
TIN	mg/L	<0.0250 [<0.0250]	<0.0250	<0.100	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.100	NA	NA	NA	NA	NA
Total Cyanide	mg/L	<0.0100 [<0.0100]	NA	NA	NA	NA	<0.0100	<0.0100	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/L	0.0740 [0.0310]	0.084	0.253	0.03	0.027	0.025	0.026	NA	0.023	0.021	0.026	NA	NA	NA	NA	NA
ZINC	mg/L	<0.0100 [<0.0100]	<0.00700	0.007	<0.00500	0.048	0.014	0.007	<0.00500	0.01	<0.00700	<0.00500	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
Metals-Dissolved																	
Aluminum, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	0.034	<0.00500	NA	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
Barium, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	<0.0100 [<0.0100]	NA	NA	<0.0100	NA
Beryllium, Dissolved	mg/L	NA	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, Dissolved	mg/L	NA	NA	NA	1.61	1.84	1.25	1.4	NA	NA	NA	NA	NA	1.1	1.27	NA	NA
Cadmium, Dissolved	mg/L	NA	NA	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	NA	NA	<0.00100 [<0.00100]	NA	NA	<0.00100	NA
Calcium, Dissolved	mg/L	NA	NA	NA	464	511	455	505	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	<0.00500	0.017	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
Cobalt, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	mg/L	NA	NA	NA	<0.0125	<0.0125	<0.0125	<0.0125	<0.00500	NA	NA	NA	NA	NA	NA	<0.0125	NA
Iron, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.0100	<0.0100	0.054	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
Lithium, Dissolved	mg/L	NA	NA	NA	0.484	0.731	0.374	0.188	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	NA	NA	NA	627	629	663	662	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	mg/L	NA	NA	NA	<0.0250	0.035	<0.00500	<0.0250	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	NA	NA	0.051	0.052	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-16 10/03/07	DRW-16 04/02/08	DRW-16 08/22/08	DRW-17 05/05/05	DRW-17 08/16/05	DRW-17 02/23/06	DRW-17 09/11/06	DRW-17 01/11/07	DRW-17 09/27/07	DRW-17 04/02/08	DRW-17 08/14/08	HELSTF-01 12/28/06	HMW-08 11/16/04	HMW-08 10/24/05	HMW-08 12/15/06	HMW-08 12/11/07
Nickel, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved	mg/L	NA	NA	NA	108	103	119	72.7	NA	NA	NA	NA	NA	NA	NA	72	NA
Selenium, Dissolved	mg/L	NA	NA	NA	0.104	<0.0100	<0.0100	0.053	NA	NA	NA	NA	<0.0100 [<0.0100]	<0.0100	0.045	<0.0100	NA
Silver, Dissolved	mg/L	NA	NA	NA	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	NA	NA	<0.00200 [<0.00200]	NA	NA	<0.00200	NA
Sodium, Dissolved	mg/L	NA	NA	NA	1,820	2,210	2,040	2,500	2,660	NA	NA	NA	2,850 [2,780]	NA	NA	3,030	NA
Strontium, Dissolved	mg/L	NA	NA	NA	17.5	8.6	7.28	6.71	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	mg/L	NA	NA	NA	0.029	0.026	0.024	0.021	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00500	<0.0100	0.005	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA
Parameters																	
ALKALINITY	mg/L	196 [194]	202	204	208	208	216	208	222	216	218	220	210 [210]	NA	NA	232	NA
Alkalinity, Bicarbonate	mg/L	196 [194]	202	204	208	208	216	208	222	216	218	220	210 [210]	NA	NA	232	NA
Alkalinity, Carbonate	mg/L	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	NA	NA	<1.00	NA
Ammonia	mg/L	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	<1.00	NA
Bromide	mg/L	1.03 [1.04]	NA	NA	0.65	<0.200	0.7	<0.200	<1.00	0.77	NA	NA	NA	NA	NA	<1.00	NA
Chloride (CL)	mg/L	2,000 [2,050]	2,470	2,750	1,420	1,400	1,490	1,540	1,620	1,540	1,510	1,710	NA	1,060	1,130	1,170	NA
CONDUCTIVITY	mS/cm	13.2	15	16.7	14.5	13.1	12.6	13.2	13.6	12.9	13.1	14.3	13.4 [13.4]	10.9	NA	13.9	13
CONDUCTIVITY	umhos/cm	15,200 [14,400]	15,600	16,000	13,500	13,400	13,400	13,500	13,600	13,800	13,700	13,500	13,100 [13,100]	NA	NA	13,500	NA
FLUORIDE	mg/L	1.93 [1.93]	1.85	2.73	1.88	1.92	2.72	2.4	2.16	2.2	2.02	2.02	NA	1	2.29	2.54	NA
Hydroxide Alkalinity	mg/L	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	NA	NA	<1.00	NA
Nitrate	mg/L	NA	NA	NA	36.5	37.2	40.3	49.3	NA	NA	NA	NA	NA	33.4	33.4	36.1	NA
Nitrate + Nitrite	mg/L	60.7 [57.0]	62.1	101	NA	NA	NA	NA	59.8	31.3	37.3	257	NA	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	NA	<0.100	<0.100	<0.100	<0.200	NA	NA	NA	NA	NA	NA	NA	<1.00	NA
PERCHLORATE	mg/L	NA	NA	NA	NA	NA	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	7.24 [7.25]	7.23	7.46	7.78	7.44	7.73	7.49	7.79	7.6	7.54	7.53	7.51 [7.43]	7.08	NA	7.45	7.29
Phosphorus	mg/L	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	NA	<0.0500 [<0.0500]	NA	NA	0.058	NA
SILICA	mg/L	NA	NA	NA	39.6	49.4	15.7	35.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	mg/L	NA	NA	NA	37.8	46.5	14.9	36.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	5,990 [5,970]	6,160	6,560	6,380	6,170	6,210	6,630	6,490	5,770	5,770	6,370	NA	6,730	7,470	8,310	NA
Temperature	deg c	22.2	21.3	21.6	24.8	23.1	18.8	23.3	19.9	21.1	19.9	22.3	15.3 [15.3]	13.9	NA	19.7	16.7
TKN	mg/L	NA	NA	NA	<4.00	<4.00	<4.00	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	mg/L	13,800 [11,800]	14,300	14,100	11,600	12,800	13,800	11,800	12,500	12,000	13,000	12,600	12,800 [12,700]	12,800	15,000	13,000	NA
TOTAL ORGANIC CARBON	mg/L	1.62 [1.69]	<1.00	NA	NA	7.03	0.45	0.72	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA
Pesticides/Herbicide																	
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOR0PROPIONIC ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DB	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICAMBA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLORPROP	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-16 10/03/07	DRW-16 04/02/08	DRW-16 08/22/08	DRW-17 05/05/05	DRW-17 08/16/05	DRW-17 02/23/06	DRW-17 09/11/06	DRW-17 01/11/07	DRW-17 09/27/07	DRW-17 04/02/08	DRW-17 08/14/08	HELSTF-01 12/28/06	HMW-08 11/16/04	HMW-08 10/24/05	HMW-08 12/15/06	HMW-08 12/11/07
G-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPP	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																	
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,2-BENZPHENANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,3,5-TRINITROBENZENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1-Chloronaphthalene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
1-NAPHTHYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2,6-DICHLOROPHENOL	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-CHLOROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-Methyl pyridine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-Methylphenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-Naphthylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
2-NITROPHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
3-METHYLCHLORANTHRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
3-Methylphenol	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
4-Aminobiphenyl	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
4-CHLOROTOLUENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
4-Methyl Phenol	mg/L	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
4-NITROPHENOL	mg/L	<0.0250 [<0.0250]	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Acenaphthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
ACENAPHTHYLENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
ACETOPHENONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Aniline	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
ANTHRACENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
BENZIDINE	mg/L	<0.0250 [<0.0250]	<0.0250	<0.0250	<0.0100	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	NA	NA	NA
Benzo(a)anthracene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Benzo(a)pyrene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-16 10/03/07	DRW-16 04/02/08	DRW-16 08/22/08	DRW-17 05/05/05	DRW-17 08/16/05	DRW-17 02/23/06	DRW-17 09/11/06	DRW-17 01/11/07	DRW-17 09/27/07	DRW-17 04/02/08	DRW-17 08/14/08	HELSTF-01 12/28/06	HMW-08 11/16/04	HMW-08 10/24/05	HMW-08 12/15/06	HMW-08 12/11/07
Benzo(b)fluoranthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
BENZOIC ACID	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
BENZYL ALCOHOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
BENZYL BUTYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
bis (2-chloroethoxy) methane	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.0100	<0.0500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
CHLOROPHENOLS	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA
CYMENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
Dibenz(a,h)anthracene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
DIBENZOFURAN	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Di-n-butyl phthalate	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Di-n-octyl phthalate	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
DIPHENYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Diphenylhydrazine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
ETHYL METHANESULFONATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
FLUORANTHENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
FLUORENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
HEXACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
HEXACHLOROETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
m,p-Cresol	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
M-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
METHYL METHANESULFONATE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
NITROBENZENE	mg/L	<0.000500 [<0.00500]	<0.000500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.000500	<0.000500	<0.00500	NA	NA	NA	NA	NA
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
n-Nitrosodi-n-propylamine	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
N-NITROSOPIPERIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
P-CHLOROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PENTACHLOROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA
PHENACETIN	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PHENANTHRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PHENOL	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
P-NITROANILINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PROPYZAMIDE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PYRENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
PYRIDINE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
TPHs																	
DRO	mg/L	<5.00 [<5.00]	<5.00	<5.00	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00	<5.00	NA	NA	NA	NA	NA
GRO	mg/L	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	NA	NA	NA	NA	NA
VOCs																	
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,1,1-Trichloroethane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,1-DICHLOROETHANE	mg/L	<0.00100 [<0.00100]	0.00117	0.00183	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	mg/L	0.00539 [0.00555]	0.00678	0.0095	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00102	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,1-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,2,3-Trichloropropane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	DRW-16 10/03/07	DRW-16 04/02/08	DRW-16 08/22/08	DRW-17 05/05/05	DRW-17 08/16/05	DRW-17 02/23/06	DRW-17 09/11/06	DRW-17 01/11/07	DRW-17 09/27/07	DRW-17 04/02/08	DRW-17 08/14/08	HELSTF-01 12/28/06	HMW-08 11/16/04	HMW-08 10/24/05	HMW-08 12/15/06	HMW-08 12/11/07
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
1,2-Dibromoethane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,2-DICHLOROBENZENE	mg/L	<0.00100 [<0.00500]	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,2-DICHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,2-Dichloropropane	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,3-DICHLOROPROPANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
1,4-Dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
2-butanone	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
2-CHLOROTOLUENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
ACETONE	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA	NA	NA	NA
ACRYLONITRILE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
BENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	NA
BROMOBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
BROMODICHLOROMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
BROMOMETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
CARBON DISULFIDE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CARBON TETRACHLORIDE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CFC-11	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CFC-12	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CHLOROBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CHLOROBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CHLORODIBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CHLOROETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CHLOROFORM	mg/L	<0.00100 [<0.00100]	0.00106	0.00156	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
CHLOROMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
cis-1,2-Dichloroethene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
cis-1,3-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
DIBROMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
DICHLOROMETHANE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
ETHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
Iodomethane	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
m,p-Xylene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
M-DINITROBENZENE	mg/L	<0.000500 [<0.000500]	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	NA	NA	NA	NA	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
METHYLBENZENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
MTBE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
NAPHTHALENE	mg/L	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	NA	NA	NA	NA
n-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
n-Propylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
o-Xylene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
sec-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
STYRENE (MONOMER)	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
TETRACHLOROETHENE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
trans-1,2-Dichloroethene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
trans-1,3-Dichloropropene	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	NA	NA	NA	NA
TRIBOMOMETHANE	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA
TRICHLOROETHYLENE	mg/L	0.0880 [0.0890]	0.0986	0.126	0.0018	0.00192	0.00302	0.00409	0.00443	0.00589	0.00784	0.00894	0.0351 [0.0359]	NA	NA	NA	NA
Vinyl Chloride	mg/L	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-08 02/27/08	HMW-08 04/16/08	HMW-08 08/19/08	HMW-29 02/04/04	HMW-29 07/06/04	HMW-29 03/24/05	HMW-29 08/03/05	HMW-29 02/10/06	HMW-29 08/16/06	HMW-29 12/20/06	HMW-30 12/19/06	HMW-32 02/05/04	HMW-32 07/19/04	HMW-32 03/24/05	HMW-32 08/04/05	HMW-32 02/13/06	HMW-32 08/21/06
Explosives																		
2,4,6-TRINITROTOLUENE	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA
2-NITROTOLUENE	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500
4-NITROTOLUENE	mg/L	NA	<0.000500	NA	<0.000500	0.000841	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
RDX	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Metals																		
ALUMINUM	mg/L	NA	NA	NA	0.865	<0.100	<0.0300	0.199	<0.0300	<0.0300	NA	NA	0.197	<0.100	<0.0300	2.27	<0.0300	<0.0300
ANTIMONY	mg/L	NA	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	mg/L	NA	<0.00500	0.014	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100
BARIUM	mg/L	NA	0.011	0.011	<0.100	0.016	0.016	<0.0100	<0.0100	<0.0100	0.0110 [0.0100]	<0.0100	0.032	<0.100	0.025	0.014	<0.0100	0.017
BERYLLIUM	mg/L	NA	<0.00200	<0.00200	<0.00250	<0.00250	0.013	<0.00250	0.004	<0.00250	NA	NA	<0.00250	<0.00250	0.013	<0.00250	<0.00250	<0.00250
BORON	mg/L	NA	NA	NA	1.56	1.63	1.58	1.64	1.3	1.35	NA	NA	2.2	1.63	1.31	1.07	0.946	1.22
CADMIUM	mg/L	NA	<0.00100	<0.00200	<0.00500	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	0.00200 [0.00200]	<0.00100	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	NA	466	470	NA	NA	NA	NA	NA	NA	426	464
Chromium	mg/L	NA	0.004	0.005	<0.0100	<0.00500	<0.0100	<0.0100	<0.00500	0.04	0.00600 [0.00500]	<0.00500	<0.0100	<0.0100	0.036	<0.0100	<0.00500	<0.00500
COBALT	mg/L	NA	<0.00200	<0.00200	<0.0200	<0.00500	<0.0200	<0.00500	<0.00500	<0.00500	NA	NA	<0.0200	<0.0200	<0.0200	<0.00500	<0.00500	<0.00500
COPPER	mg/L	NA	<0.00500	<0.00500	<0.0125	0.012	0.04	<0.00500	0.139	0.04	NA	NA	<0.0250	0.117	0.049	0.052	0.018	0.005
Hexavalent Chromium	mg/L	NA	NA	NA	0.015	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA
Iron	mg/L	NA	NA	NA	0.59	<0.0500	0.222	<0.0100	<0.0100	0.152	NA	NA	0.072	<0.0500	<0.0100	<0.0100	<0.0100	0.015
LEAD	mg/L	NA	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.00500	0.395	NA	NA	NA	NA	NA	NA	0.643	0.4
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	662	638	NA	NA	NA	NA	NA	NA	281	326
MANGANESE	mg/L	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
MERCURY	mg/L	NA	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200 [<0.000200]	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	NA	NA	NA	0.066	0.071	0.109	<0.0500	0.055	<0.0500	NA	NA	0.218	0.147	0.214	0.138	0.12	0.146
NICKEL	mg/L	NA	<0.00500	<0.00500	<0.0250	<0.00500	<0.0250	<0.0100	<0.00500	0.015	NA	NA	<0.0250	<0.0250	<0.0250	<0.0100	<0.00500	<0.00500
POTASSIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	101	105	NA	NA	NA	NA	NA	NA	102	50.4
SELENIUM	mg/L	NA	0.054	0.05	<0.0500	0.087	0.26	<0.0100	0.068	0.054	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0500	0.172	<0.0100	<0.0100	0.048
SILVER	mg/L	NA	<0.00500	<0.00500	<0.0125	<0.00300	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200 [<0.00200]	<0.00200	<0.0125	<0.0125	<0.00200	<0.00200	<0.00200	<0.00200
SODIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	1,920	1,750	NA	NA	NA	NA	NA	NA	2,000	2,590
STRONTIUM	mg/L	NA	NA	NA	9.48	10.7	15.9	8.77	9.81	18.5	NA	NA	8.76	9.25	11.8	5.82	6.36	13.4
THALLIUM	mg/L	NA	<0.0200	<0.0500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TIN	mg/L	NA	<0.0250	<0.100	<0.0250	<0.0250	0.208	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	0.232	<0.0250	<0.0250	<0.0250
Total Cyanide	mg/L	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100	NA
VANADIUM (FUME OR DUST)	mg/L	NA	0.026	0.024	0.026	0.021	0.037	<0.00500	0.029	0.021	NA	NA	<0.0250	<0.0250	<0.0250	<0.00500	<0.00500	0.006
ZINC	mg/L	NA	<0.00700	0.008	<0.0250	<0.0100	<0.00500	<0.00500	0.009	0.016	<0.00500 [<0.00500]	<0.00500	<0.0250	<0.0250	<0.00500	<0.00500	0.017	0.023
Metals-Dissolved																		
Aluminum, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0500	<0.0500	0.16	<0.0300	<0.0300	NA	NA	<0.0500	<0.0500	<0.0500	1.2	<0.0300	<0.0300
Arsenic, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500
Barium, Dissolved	mg/L	NA	NA	NA	<0.100	0.014	0.013	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.100	<0.100	0.018	0.01	<0.0100	0.012
Beryllium, Dissolved	mg/L	NA	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	0.004	<0.00250	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
Boron, Dissolved	mg/L	NA	NA	NA	1.33	1.43	1.54	1.4	1.28	1.42	NA	NA	1.81	1.6	1.18	1.2	0.945	0.893
Cadmium, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.0250	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100
Calcium, Dissolved	mg/L	NA	NA	NA	430	464	467	507	523	430	NA	NA	411	384	504	492	455	441
Chromium, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	0.028	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	0.025	<0.00500	<0.00500	<0.00500
Cobalt, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	<0.0250	<0.0250	<0.0250	<0.00500	<0.00500	<0.00500
Copper, Dissolved	mg/L	NA	NA	NA	<0.0125	<0.0125	0.013	<0.0125	0.107	0.044	NA	NA	<0.0125	0.115	0.025	0.12	0.017	<0.0125
Iron, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0500	0.014	<0.0100	<0.0100	0.097	NA	NA	<0.0500	<0.0500	<0.0100	<0.0100	<0.0100	0.012
Lead, Dissolved	mg/L	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500
Lithium, Dissolved	mg/L	NA	NA	NA	0.597	1.03	0.618	0.53	<0.00500	0.385	NA	NA	0.652	0.459	0.585	0.52	0.643	0.151
Magnesium, Dissolved	mg/L	NA	NA	NA	564	689	615	698	699	590	NA	NA	467	455	308	364	290	326
Manganese, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500	<0.00500	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Molybdenum, Dissolved	mg/L	NA	NA	NA	0.065	0.081	0.063	<0.0500	0.055	<0.0500	NA	NA	0.151	0.142	0.151	0.12	0.117	0.105

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-08 02/27/08	HMW-08 04/16/08	HMW-08 08/19/08	HMW-29 02/04/04	HMW-29 07/06/04	HMW-29 03/24/05	HMW-29 08/03/05	HMW-29 02/10/06	HMW-29 08/16/06	HMW-29 12/20/06	HMW-30 12/19/06	HMW-32 02/05/04	HMW-32 07/19/04	HMW-32 03/24/05	HMW-32 08/04/05	HMW-32 02/13/06	HMW-32 08/21/06
Nickel, Dissolved	mg/L	NA	NA	NA	<0.0250	0.008	<0.0250	<0.00500	<0.00500	0.012	NA	NA	<0.0250	<0.0250	<0.0250	<0.00500	<0.00500	<0.00500
Potassium, Dissolved	mg/L	NA	NA	NA	81	80.7	91.8	95	111	109	NA	NA	75.1	61.6	92.4	98.2	105	109
Selenium, Dissolved	mg/L	NA	NA	NA	<0.0500	<0.0100	0.12	<0.0100	0.066	0.067	0.0980 [<0.0100]	<0.0100	<0.0500	<0.0500	0.082	<0.0100	<0.0100	<0.0100
Silver, Dissolved	mg/L	NA	NA	NA	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200 [<0.00200]	<0.00200	<0.0130	<0.0130	<0.0130	<0.00200	<0.00200	<0.00200
Sodium, Dissolved	mg/L	NA	NA	NA	1,920	2,380	1,990	2,550	2,170	1,910	NA	NA	2,120	1,860	2,100	2,680	2,170	2,190
Strontium, Dissolved	mg/L	NA	NA	NA	9.44	10.1	14.6	7.89	9.12	16.6	NA	NA	7.04	8.17	10.5	5.52	6	5.17
Tin, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	NA	NA	NA	<0.0250	0.021	0.03	<0.00500	0.022	0.025	NA	NA	<0.0250	<0.0250	<0.0250	<0.00500	<0.00500	<0.00500
Zinc, Dissolved	mg/L	NA	NA	NA	<0.0250	<0.0100	<0.0250	<0.00500	<0.0100	0.049	<0.00500 [<0.00500]	<0.00500	<0.0250	<0.0250	<0.0250	<0.00500	0.01	0.006
Parameters																		
ALKALINITY	mg/L	NA	224	242	224	212	222	210	228	220	222 [218]	154	176	162	82	78	60	68
Alkalinity, Bicarbonate	mg/L	NA	224	242	224	212	222	210	228	220	222 [218]	154	176	162	82	78	60	68
Alkalinity, Carbonate	mg/L	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	NA	NA	NA	<1.00	4	<1.00	<1.00	<1.00	<1.00	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromide	mg/L	NA	NA	NA	0.72	0.66	<0.200	0.69	<0.200	<0.200	<1.00 [<1.00]	<1.00	<0.200	<0.200	<0.200	0.63	0.64	<0.200
Chloride (CL)	mg/L	NA	1,130	1,200	1,240	1,170	1,220	1,130	1,120	1,190	1,160 [1,160]	660	1,160	1,170	1,280	1,170	1,220	1,330
CONDUCTIVITY	mS/cm	12	12.7	14.1	13.5	NA	14.1	12.9	12.2	12.7	13.1 [13.1]	10.8	13.6	NA	14.2	12.9	12	12.4
CONDUCTIVITY	umhos/cm	NA	13,200	13,600	13,200	12,900	12,800	13,300	12,500	11,100	12,700 [12,700]	10,500	13,400	13,100	12,200	12,800	12,200	11,600
FLUORIDE	mg/L	NA	2.32	2.37	<0.200	<0.200	<0.200	1.9	1.92	<0.200	1.74 [1.76]	2.39	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Hydroxide Alkalinity	mg/L	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	NA	NA	NA	35.7	35.4	45.2	35.6	35.7	38.8	37.4 [39.0]	13.5	27.9	28	36.6	35.8	25.9	24.2
Nitrate + Nitrite	mg/L	NA	30.2	257	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	NA	<0.100	<0.100	<0.0100	<0.100	<0.100	<0.200	<1.00 [<1.00]	<1.00	<0.100	<0.100	<0.0100	<0.100	<0.100	<0.200
PERCHLORATE	mg/L	NA	NA	NA	<0.00118	<0.00118	NA	NA	<0.0100	<0.0100	NA	NA	<0.00118	<0.00118	NA	NA	<0.00500	<0.0100
pH	pH Units	7.13	7.33	7.36	7.5	7.37	7.38	7.48	8.29	8.41	7.40 [7.41]	7.74	7.5	7.59	8	7.75	7.92	7.96
Phosphorus	mg/L	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	NA	NA	0.058	<0.0500	0.068	0.132	<0.0500	0.068
SILICA	mg/L	NA	NA	NA	53.7	45.9	44.6	44.1	44.1	46.8	NA	NA	25.5	26	16	11.9	13	18.3
Silica, Dissolved	mg/L	NA	NA	NA	48	41.9	43.8	41.3	43.7	47.7	NA	NA	22.9	25.8	14.2	10.6	12.8	12.6
Sulfate	mg/L	NA	6,750	7,240	6,800	6,410	6,500	6,610	6,550	7,440	7,570 [7,610]	6,650	6,660	6,380	6,040	5,750	5,520	5,990
Temperature	deg c	19.1	21.5	21.4	17.3	NA	20.1	27.9	17.9	22.1	16.1 [16.1]	16.1	16.4	NA	20.1	23.5	20.5	23.3
TKN	mg/L	NA	NA	NA	<4.00	<4.00	<4.00	5.88	<4.00	<4.00	NA	NA	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00
Total Dissolved Solids	mg/L	NA	12,800	12,600	12,400	12,300	12,000	12,100	12,000	12,000	12,200 [12,200]	10,300	12,400	11,900	10,700	11,200	11,100	9,860
TOTAL ORGANIC CARBON	mg/L	NA	<1.00	NA	<1.00	<1.00	36.9	2.08	<1.00	0.32	NA	NA	1.07	<1.00	<1.00	2.24	0.31	0.89
Pesticides/Herbicide																		
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
2,2-DICHLOR0PROPIONIC ACID	mg/L	NA	NA	NA	<0.00100	NA	NA	NA	<0.00200	<0.00200	NA	NA	<0.00100	NA	NA	NA	<0.00200	<0.00200
2,4,5-T	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.00100	<0.00100	NA	NA	<0.000200	NA	NA	NA	<0.00100	<0.00100
2,4,5-TP (Silvex)	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.00100	<0.00100	NA	NA	<0.000200	NA	NA	NA	<0.00100	<0.00100
2,4-D	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400
2,4-DB	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400
4,4-DDD	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
4,4-DDE	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
4,4-DDT	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
ALDRIN	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
alpha-BHC	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
alpha-Chlordane	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
beta-BHC	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
CAMPHECHLOR	mg/L	NA	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500	<0.00500
D-BHC	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
DICAMBA	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.00200	<0.00200	NA	NA	<0.000200	NA	NA	NA	<0.00200	<0.00200
DICHLORPROP	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400
DIELDRIN	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
DINITROBUTYL PHENOL	mg/L	NA	NA	NA	<0.000200	NA	NA	NA	<0.000600	<0.000600	NA	NA	<0.000200	NA	NA	NA	<0.000600	<0.000600
Endosulfan I	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
Endosulfan II	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
ENDOSULFAN SULFATE	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
ENDRIN	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
ENDRIN ALDEHYDE	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
ENDRIN KETONE	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
gamma-Chlordane	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-08 02/27/08	HMW-08 04/16/08	HMW-08 08/19/08	HMW-29 02/04/04	HMW-29 07/06/04	HMW-29 03/24/05	HMW-29 08/03/05	HMW-29 02/10/06	HMW-29 08/16/06	HMW-29 12/20/06	HMW-30 12/19/06	HMW-32 02/05/04	HMW-32 07/19/04	HMW-32 03/24/05	HMW-32 08/04/05	HMW-32 02/13/06	HMW-32 08/21/06
G-BHC	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
HEPTACHLOR	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
HEPTACHLOR EPOXIDE	mg/L	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500
MCPA	mg/L	NA	NA	NA	<0.0100	NA	NA	NA	<0.400	<0.400	NA	NA	<0.0100	NA	NA	NA	<0.400	<0.400
MCPP	mg/L	NA	NA	NA	<0.0100	NA	NA	NA	<0.400	<0.400	NA	NA	<0.0100	NA	NA	NA	<0.400	<0.400
Technical Chlordane	mg/L	NA	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500	<0.00500
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	NA	<0.00100	<0.00100	<5.00	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<5.00	<5.00	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	NA	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	NA	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	NA	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	<5.00	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	NA	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	NA	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	NA	NA	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-08 02/27/08	HMW-08 04/16/08	HMW-08 08/19/08	HMW-29 02/04/04	HMW-29 07/06/04	HMW-29 03/24/05	HMW-29 08/03/05	HMW-29 02/10/06	HMW-29 08/16/06	HMW-29 12/20/06	HMW-30 12/19/06	HMW-32 02/05/04	HMW-32 07/19/04	HMW-32 03/24/05	HMW-32 08/04/05	HMW-32 02/13/06	HMW-32 08/21/06
Benzo(b)fluoranthene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	NA	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	NA	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	NA	NA	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	NA	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100
CYMENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	NA	<0.00500	<0.00500	NA	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	NA	<0.00100	<0.00100	<5.00	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<5.00	<5.00	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	NA	<0.000500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
P-CHLOROANILINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	NA	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	NA	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100
PHENACETIN	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
TPHs																		
DRO	mg/L	NA	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00 [<5.00]	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00
GRO	mg/L	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100 [<0.100]	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-08 02/27/08	HMW-08 04/16/08	HMW-08 08/19/08	HMW-29 02/04/04	HMW-29 07/06/04	HMW-29 03/24/05	HMW-29 08/03/05	HMW-29 02/10/06	HMW-29 08/16/06	HMW-29 12/20/06	HMW-30 12/19/06	HMW-32 02/05/04	HMW-32 07/19/04	HMW-32 03/24/05	HMW-32 08/04/05	HMW-32 02/13/06	HMW-32 08/21/06
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500
1,2-Dibromoethane	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	NA	<0.00100	<0.00100	<5.00	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<5.00	<5.00	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500 [<0.00500]	<0.00500	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	NA	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500
CARBON DISULFIDE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500 [<0.00500]	<0.00500	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	NA	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
METHYL N-BUTYL KETONE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500
METHYLBENZENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500 [<0.00500]	<0.00500	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100 [<0.0100]	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100 [<0.00100]	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-32 12/19/06	HMW-32 08/24/07	HMW-34 02/04/04	HMW-34 07/01/04	HMW-34 03/23/05	HMW-34 08/02/05	HMW-34 02/09/06	HMW-34 08/15/06	HMW-34 12/27/06	HMW-34 08/23/07	HMW-34 04/15/08	HMW-34 08/19/08	HMW-35 02/05/04	HMW-35 06/29/04	HMW-35 03/24/05	HMW-35 08/02/05	HMW-35 02/10/06
Explosives																		
2,4,6-TRINITROTOLUENE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
2,6-DNT / 2,4-DNT	mg/L	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA
2-NITROTOLUENE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
3-NITROTOLUENE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.000500	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500
4-NITROTOLUENE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
RDX	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
TETRYL	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Metals																		
ALUMINUM	mg/L	NA	NA	2.7	<0.100	0.778	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	0.311	<0.100	<0.0300	<0.0300	<0.0300
ANTIMONY	mg/L	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0200	NA	NA	NA	NA	NA
ARSENIC	mg/L	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500
BARIUM	mg/L	<0.0100	0.015	<0.100	0.023	0.125	0.014	0.02	0.014	0.014	0.017	0.013	0.015	0.026	0.011	0.018	<0.0100	0.012
BERYLLIUM	mg/L	NA	<0.00250	<0.00250	<0.00250	0.119	<0.00250	0.004	<0.00250	NA	<0.00250	<0.00200	<0.00200	<0.00250	<0.00250	0.013	<0.00250	<0.00250
BORON	mg/L	NA	NA	1.79	1.79	1.71	1.55	1.48	1.51	NA	NA	NA	NA	1.35	1.13	1.24	1.03	1.1
CADMIUM	mg/L	<0.00100	<0.00200	<0.00500	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200	<0.00500	<0.00100	<0.00500	<0.00100	<0.00100
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	427	483	NA	NA	NA	NA	NA	NA	NA	NA	487
Chromium	mg/L	<0.00500	0.018	<0.0100	<0.00500	<0.0100	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00100	<0.00500	<0.0100	<0.00500	<0.0100	<0.0100	<0.00500
COBALT	mg/L	NA	<0.00500	<0.0200	<0.00500	0.287	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00200	<0.00200	<0.0200	<0.00500	<0.0200	<0.00500	<0.00500
COPPER	mg/L	NA	<0.00500	<0.0125	0.01	0.497	0.032	<0.00500	0.012	NA	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	0.058	0.086	<0.00500
Hexavalent Chromium	mg/L	NA	NA	0.046	<0.0100	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	NA
Iron	mg/L	NA	NA	1.72	<0.0500	0.362	<0.0100	<0.0100	0.252	NA	NA	NA	NA	0.095	<0.0500	<0.0100	0.039	<0.0100
LEAD	mg/L	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.00500	<0.00500
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	0.763	0.375	NA	NA	NA	NA	NA	NA	NA	NA	0.715
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	520	548	NA	NA	NA	NA	NA	NA	NA	NA	512
MANGANESE	mg/L	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500	NA	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
MERCURY	mg/L	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	NA	NA	0.167	0.172	<0.0500	0.172	0.154	0.148	NA	NA	NA	NA	0.315	0.223	0.321	0.257	0.259
NICKEL	mg/L	NA	<0.00500	<0.0250	<0.00500	<0.0250	<0.0100	<0.00500	<0.0100	NA	<0.00500	<0.00500	<0.00500	<0.0250	<0.00500	<0.0250	<0.0100	<0.00500
POTASSIUM	mg/L	NA	NA	NA	NA	NA	NA	97.8	103	NA	NA	NA	NA	NA	NA	NA	NA	89.3
SELENIUM	mg/L	<0.0100	<0.0200	<0.0500	<0.0100	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0100	<0.0200	<0.0100	<0.0100	0.286	<0.0100	0.16
SILVER	mg/L	<0.00200	<0.00500	<0.0125	<0.00300	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.0125	<0.00300	<0.00200	<0.00200	<0.00200
SODIUM	mg/L	NA	NA	NA	NA	NA	NA	1,970	1,930	NA	NA	NA	NA	NA	NA	NA	NA	1,660
STRONTIUM	mg/L	NA	NA	7.55	8.3	10.6	16	9.23	16	NA	NA	NA	NA	15.9	9.04	16.5	17.5	9.24
THALLIUM	mg/L	NA	<0.0500	NA	NA	NA	NA	NA	NA	NA	<0.0500	<0.0200	<0.0500	NA	NA	NA	NA	NA
TIN	mg/L	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	0.027	<0.0250	NA	<0.0250	<0.0250	<0.100	<0.0250	<0.0250	0.23	<0.0250	<0.0250
Total Cyanide	mg/L	NA	<0.0100	<0.0100	NA	<0.0100	NA	<0.0100	NA	NA	<0.0100	NA	NA	<0.0100	NA	<0.0100	NA	<0.0100
VANADIUM (FUME OR DUST)	mg/L	NA	0.009	0.031	0.021	<0.0250	0.025	<0.00500	0.019	NA	0.023	0.02	0.022	0.03	0.023	0.042	0.023	<0.00500
ZINC	mg/L	<0.00500	0.011	<0.0250	<0.0100	<0.00500	<0.00500	0.015	0.024	0.018	0.017	<0.00700	0.01	<0.0250	0.016	<0.00500	<0.00500	0.011
Metals-Dissolved																		
Aluminum, Dissolved	mg/L	NA	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300	<0.0300	NA	NA	NA	NA	<0.0500	<0.0500	<0.0500	<0.0300	<0.0300
Arsenic, Dissolved	mg/L	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500
Barium, Dissolved	mg/L	<0.0100	NA	<0.100	0.024	0.019	0.014	0.019	0.016	0.011	NA	NA	NA	<0.100	0.015	0.0135	<0.0100	0.012
Beryllium, Dissolved	mg/L	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	0.004	<0.00250	NA	NA	NA	NA	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
Boron, Dissolved	mg/L	NA	NA	1.63	1.87	1.7	1.49	1.47	1.59	NA	NA	NA	NA	1.08	1.18	1.17	1	1.07
Cadmium, Dissolved	mg/L	<0.00100	NA	<0.0250	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	NA	NA	NA	<0.0250	<0.00100	<0.00100	<0.00100	<0.00100
Calcium, Dissolved	mg/L	NA	NA	395	423	415	463	491	430	NA	NA	NA	NA	426	464	481	487	518
Chromium, Dissolved	mg/L	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500
Cobalt, Dissolved	mg/L	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500
Copper, Dissolved	mg/L	NA	NA	<0.0125	<0.0125	0.074	0.028	<0.0125	0.014	NA	NA	NA	NA	<0.0125	<0.0125	0.027	0.056	<0.0125
Iron, Dissolved	mg/L	NA	NA	<0.0500	<0.0500	0.019	<0.0100	<0.0100	0.083	NA	NA	NA	NA	<0.0500	<0.0500	<0.0100	<0.0100	0.025
Lead, Dissolved	mg/L	<0.00500	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.0100	<0.00500	<0.0100	<0.00500	<0.00500
Lithium, Dissolved	mg/L	NA	NA	0.566	1.28	0.586	0.601	0.756	0.4	NA	NA	NA	NA	0.468	1.14	0.53	0.54	0.715
Magnesium, Dissolved	mg/L	NA	NA	461	502	487	550	558	513	NA	NA	NA	NA	427	471	492	517	538
Manganese, Dissolved	mg/L	NA	NA	<0.0250	0.028	<0.0250	<0.0250	<0.00500	<0.00500	NA	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.00500
Molybdenum, Dissolved	mg/L	NA	NA	0.165	0.198	<0.0500	0.166	0.147	0.156	NA	NA	NA	NA	0.229	0.223	0.251	0.252	0.253

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-32 12/19/06	HMW-32 08/24/07	HMW-34 02/04/04	HMW-34 07/01/04	HMW-34 03/23/05	HMW-34 08/02/05	HMW-34 02/09/06	HMW-34 08/15/06	HMW-34 12/27/06	HMW-34 08/23/07	HMW-34 04/15/08	HMW-34 08/19/08	HMW-35 02/05/04	HMW-35 06/29/04	HMW-35 03/24/05	HMW-35 08/02/05	HMW-35 02/10/06
Nickel, Dissolved	mg/L	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500	0.012	NA	NA	NA	NA	<0.0250	<0.00500	<0.0250	<0.00500	<0.00500
Potassium, Dissolved	mg/L	NA	NA	76.6	73.6	82.4	92.2	110	98.6	NA	NA	NA	NA	64.9	61.4	129	88	104
Selenium, Dissolved	mg/L	<0.0100	NA	<0.0500	<0.0100	<0.0500	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	NA	<0.0500	<0.0100	0.186	<0.0100	0.159
Silver, Dissolved	mg/L	<0.00200	NA	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200	<0.00200	<0.00200	NA	NA	NA	<0.0130	<0.00300	<0.0130	<0.00200	<0.00200
Sodium, Dissolved	mg/L	NA	NA	1,940	2,100	1,970	2,450	2,080	1,950	NA	NA	NA	NA	1,720	1,820	1,810	2,160	1,930
Strontium, Dissolved	mg/L	NA	NA	7.53	8.79	10	13.4	7.75	14.2	NA	NA	NA	NA	8.61	9.87	14.9	16.6	9.16
Tin, Dissolved	mg/L	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	0.026	<0.0250	NA	NA	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Vanadium, Dissolved	mg/L	NA	NA	0.025	0.023	0.029	0.052	<0.00500	0.023	NA	NA	NA	NA	<0.0250	0.014	0.029	0.017	<0.00500
Zinc, Dissolved	mg/L	<0.00500	NA	<0.0250	<0.0100	<0.0250	<0.00500	0.015	0.074	<0.00500	NA	NA	NA	<0.0250	<0.0100	<0.0250	<0.00500	<0.0100
Parameters																		
ALKALINITY	mg/L	120	86	218	178	170	174	180	184	174	178	176	174	170	170	196	178	174
Alkalinity, Bicarbonate	mg/L	120	86	218	178	170	174	180	184	174	178	176	174	170	170	196	178	174
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	<1.00	<1.00	<1.00	<1.00	<1.00
Bromide	mg/L	<1.00	0.61	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<1.00	<0.200	NA	NA	<0.200	<0.200	<0.200	<0.200	<0.200
Chloride (CL)	mg/L	1,190	1,170	810	800	832	843	826	846	828	813	865	803	892	925	1,020	1,030	1,030
CONDUCTIVITY	mS/cm	13.2	11.9	12.6	NA	13.2	12.1	11.6	12	12.4	11.3	11.5	12.5	11.6	NA	12.8	11.5	11
CONDUCTIVITY	umhos/cm	12,800	12,500	12,400	12,400	12,000	12,500	12,300	11,400	12,100	12,200	12,000	12,000	11,400	11,600	11,600	12,000	11,800
FLUORIDE	mg/L	<1.00	<0.200	<0.200	<0.200	<0.200	0.57	<0.200	<0.200	1.15	1.27	1.3	1.29	0.87	<0.200	<0.200	1.84	1.84
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	29.6	NA	14.3	14.5	25.5	14.9	15	12.3	15.1	NA	NA	NA	30.4	23.2	34	25.3	24.5
Nitrate + Nitrite	mg/L	NA	29.8	NA	NA	NA	NA	NA	NA	NA	14.7	13.5	82.5	NA	NA	NA	NA	NA
Nitrite	mg/L	<1.00	NA	<0.100	<0.100	<0.0100	<0.100	<0.100	<0.200	<1.00	NA	NA	NA	<0.100	<0.100	<0.0100	<0.100	<0.100
PERCHLORATE	mg/L	NA	NA	<0.00118	<0.00118	NA	NA	<0.00500	<0.0100	NA	NA	NA	NA	<0.00118	<0.00118	NA	NA	<0.00500
pH	pH Units	7.78	7.62	7.5	7.45	7.83	7.53	7.57	8.37	7.58	7.55	7.41	7.47	7.5	7.48	7.42	7.53	7.64
Phosphorus	mg/L	NA	NA	0.131	0.072	1.26	0.068	<0.0500	0.081	NA	NA	NA	NA	<0.0500	0.056	<0.0500	<0.0500	<0.0500
SILICA	mg/L	NA	NA	41.4	30	43.6	24.6	30	30.9	NA	NA	NA	NA	57.8	49.4	45.1	36.3	48
Silica, Dissolved	mg/L	NA	NA	36.6	31.1	29.3	23.9	29.1	32	NA	NA	NA	NA	48.7	49.2	44.7	29.9	46.6
Sulfate	mg/L	6,990	5,950	6,990	6,730	6,980	6,490	6,470	6,800	7,400	6,410	7,050	6,450	5,740	5,500	5,890	6,370	5,980
Temperature	deg c	15.1	23.8	18.7	NA	21.3	24.5	19.1	21.9	20.2	22.4	23.1	21.7	17.8	NA	19.5	25.5	16.8
TKN	mg/L	NA	NA	<4.00	<4.00	<4.00	4.2	<4.00	<4.00	NA	NA	NA	NA	<4.00	<4.00	5.32	<4.00	<4.00
Total Dissolved Solids	mg/L	11,800	11,400	11,600	11,200	11,500	11,600	11,600	11,400	11,500	12,300	10,900	11,300	10,400	10,300	10,700	10,700	11,000
TOTAL ORGANIC CARBON	mg/L	NA	<1.00	<1.00	<1.00	6.69	1.13	<1.00	0.53	NA	1.58	<1.00	NA	<1.00	<1.00	2.38	1.16	<1.00
Pesticides/Herbicide																		
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
2,2-DICHLOR0PROPIONIC ACID	mg/L	NA	NA	<0.00100	NA	NA	NA	<0.00200	<0.00200	NA	NA	NA	NA	<0.00100	NA	NA	NA	<0.00200
2,4,5-T	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.00100	<0.00100	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.00100
2,4,5-TP (Silvex)	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.00100	<0.00100	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.00100
2,4-D	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.00400
2,4-DB	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.00400
4,4-DDD	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
4,4-DDE	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
4,4-DDT	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
ALDRIN	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
alpha-BHC	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
alpha-Chlordane	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
beta-BHC	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
CAMPHECHLOR	mg/L	NA	NA	0.0267	<1.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500
D-BHC	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
DICAMBA	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.00200	<0.00200	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.00200
DICHLORPROP	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.00400	<0.00400	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.00400
DIELDRIN	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
DINITROBUTYL PHENOL	mg/L	NA	NA	<0.000200	NA	NA	NA	<0.000600	<0.000600	NA	NA	NA	NA	<0.000200	NA	NA	NA	<0.000600
Endosulfan I	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
Endosulfan II	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
ENDOSULFAN SULFATE	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
ENDRIN	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
ENDRIN ALDEHYDE	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
ENDRIN KETONE	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
gamma-Chlordane	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-32 12/19/06	HMW-32 08/24/07	HMW-34 02/04/04	HMW-34 07/01/04	HMW-34 03/23/05	HMW-34 08/02/05	HMW-34 02/09/06	HMW-34 08/15/06	HMW-34 12/27/06	HMW-34 08/23/07	HMW-34 04/15/08	HMW-34 08/19/08	HMW-35 02/05/04	HMW-35 06/29/04	HMW-35 03/24/05	HMW-35 08/02/05	HMW-35 02/10/06
G-BHC	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
HEPTACHLOR	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
HEPTACHLOR EPOXIDE	mg/L	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500	<0.000500	NA	NA	NA	NA	<0.100	<0.100	<0.000500	<0.000500	<0.000500
MCPA	mg/L	NA	NA	<0.0100	NA	NA	NA	<0.400	<0.400	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.400
MCPP	mg/L	NA	NA	<0.0100	NA	NA	NA	<0.400	<0.400	NA	NA	NA	NA	<0.0100	NA	NA	NA	<0.400
Technical Chlordane	mg/L	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	NA	NA	<1.00	<1.00	<0.00500	<0.00500	<0.00500
SVOCs																		
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<5.00	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	NA	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	NA	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	NA	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA	NA	NA
3-NITROANILINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	NA	<5.00	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<5.00	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	NA	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<5.00	<5.00	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Aniline	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	NA	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<15.0	<15.0	<0.0100	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-32 12/19/06	HMW-32 08/24/07	HMW-34 02/04/04	HMW-34 07/01/04	HMW-34 03/23/05	HMW-34 08/02/05	HMW-34 02/09/06	HMW-34 08/15/06	HMW-34 12/27/06	HMW-34 08/23/07	HMW-34 04/15/08	HMW-34 08/19/08	HMW-35 02/05/04	HMW-35 06/29/04	HMW-35 03/24/05	HMW-35 08/02/05	HMW-35 02/10/06
Benzo(b)fluoranthene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	NA	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<20.0	<20.0	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	NA	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<10.0	<10.0	<0.0100	<0.0500	<0.00500
CHLOROPHENOLS	mg/L	NA	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	NA	<0.00500	NA	<5.00	NA	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	NA	<5.00	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<5.00	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	NA	<0.000500	<5.00	<0.000500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.000500	<0.000500	<0.00500	<5.00	<0.000500	<0.00500	<0.00500	<0.00500
N-NITROSODI-N-BUTYLAMINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
P-CHLOROANILINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	NA	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<5.00	<5.00	<0.00500	<0.0100	<0.0100
PHENACETIN	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
TPHs																		
DRO	mg/L	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0	<5.00	<5.00	<5.00	<5.00	<5.00	<50.0	<50.0	<50.0	<50.0	<50.0
GRO	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																		
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-32 12/19/06	HMW-32 08/24/07	HMW-34 02/04/04	HMW-34 07/01/04	HMW-34 03/23/05	HMW-34 08/02/05	HMW-34 02/09/06	HMW-34 08/15/06	HMW-34 12/27/06	HMW-34 08/23/07	HMW-34 04/15/08	HMW-34 08/19/08	HMW-35 02/05/04	HMW-35 06/29/04	HMW-35 03/24/05	HMW-35 08/02/05	HMW-35 02/10/06
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00200
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<5.00	<0.00100	<0.00100	<0.00100	<0.00100	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<5.00	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	0.101	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	NA	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<5.00	<5.00	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00100	<0.00100	<0.00100
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-35 08/16/06	HMW-35 12/27/06	HMW-54 01/12/07	HMW-54 10/02/07	HMW-54 03/31/08	HMW-54 08/11/08	HMW-55 01/11/07	HMW-55 10/01/07	HMW-55 03/31/08	HMW-55 08/08/08	HMW-56 01/10/07	HMW-57 12/11/06	HMW-57 04/10/08	HMW-57 09/04/08	HMW-58 12/12/06	HMW-58 04/04/08	HMW-58 09/03/08	HMW-59 01/03/07
Explosives																			
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
2,6-DNT / 2,4-DNT	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
3-NITROTOLUENE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
4-NITROTOLUENE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
RDX	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	0.000603	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
TETRYL	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	0.00241	0.0014	NA
Metals																			
ALUMINUM	mg/L	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/L	NA	NA	NA	<0.0500	<0.0200	<0.0200	NA	<0.0500	<0.0200	<0.0200	NA	NA	<0.0200	<0.0200	NA	<0.0200	<0.0200	NA
ARSENIC	mg/L	<0.0100	<0.0100	NA	<0.00500	<0.00500	<0.0100	NA	<0.00500	<0.00500	<0.0100	NA	<0.0100	<0.00500	<0.0100	NA	<0.00500	<0.0100	<0.0100
BARIUM	mg/L	0.011	<0.0100	NA	<0.0100	0.006	0.008	NA	<0.0100	0.007	0.008	NA	<0.0100	0.007	0.03	NA	0.008	0.008	0.016
BERYLLIUM	mg/L	<0.00250	NA	NA	<0.00250	<0.00200	<0.00200	NA	<0.00250	<0.00200	<0.00200	NA	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA
BORON	mg/L	1.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/L	<0.00100	<0.00100	<0.00100	<0.00200	<0.00100	<0.00200	0.002	<0.00200	<0.00100	<0.00200	NA	<0.00100	<0.00100	<0.00200	<0.00100	<0.00100	<0.00200	<0.00100
CALCIUM METAL	mg/L	507	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	<0.0100	<0.00500	<0.00500	<0.00500	<0.00100	0.005	0.047	0.051	0.04	0.042	<0.00500	<0.00500	0.007	<0.00500	<0.00500	0.005	<0.00500	<0.00500
COBALT	mg/L	<0.00500	NA	NA	<0.00500	<0.00200	<0.00200	NA	<0.00500	<0.00200	<0.00200	NA	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA
COPPER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	0.008	0.014	0.056	0.014	NA
Hexavalent Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/L	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	<0.00500	<0.00500	<0.0100	<0.00500	0.013	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
LITHIUM	mg/L	0.384	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	mg/L	513	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/L	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200	NA	<0.000200	<0.000200	<0.000200
MOLYBDENUM	mg/L	0.275	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/L	<0.0100	NA	NA	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	NA	NA	0.005	<0.00500	NA	0.02	<0.00500	NA
POTASSIUM	mg/L	86.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/L	0.163	0.158	NA	0.059	0.057	0.058	NA	0.07	0.06	0.057	NA	<0.0100	0.055	0.051	NA	0.053	0.062	<0.0100
SILVER	mg/L	<0.00200	<0.00200	<0.00200	<0.00500	<0.00500	<0.00500	<0.00200	<0.00500	<0.00500	<0.00500	<0.00200	<0.00200	<0.00500	<0.00500	<0.00200	<0.00500	<0.00500	<0.00200
SODIUM	mg/L	1,660	NA	3,160	NA	NA	NA	3,660	NA	NA	NA	NA	2,840	NA	NA	4,330	NA	NA	NA
STRONTIUM	mg/L	16.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/L	NA	NA	NA	<0.0500	<0.0200	<0.0500	NA	<0.0500	<0.0200	<0.0500	NA	NA	<0.0200	<0.0500	NA	<0.0200	<0.0500	NA
TIN	mg/L	<0.0250	NA	NA	<0.0250	<0.0250	<0.100	NA	<0.0250	<0.0250	<0.100	NA	NA	<0.0250	<0.100	NA	<0.0250	<0.100	NA
Total Cyanide	mg/L	NA	NA	NA	<0.0100	NA	NA	NA	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM (FUME OR DUST)	mg/L	0.021	NA	NA	0.023	0.022	0.026	NA	0.029	0.025	0.029	NA	NA	0.022	0.028	NA	0.028	0.029	NA
ZINC	mg/L	0.027	<0.00500	<0.00500	<0.0100	<0.00700	0.006	<0.00500	<0.0100	<0.00700	0.005	<0.00500	<0.00500	<0.00700	0.028	0.362	0.27	0.4	<0.00500
Metals-Dissolved																			
Aluminum, Dissolved	mg/L	<0.0300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	<0.00500	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	<0.00500
Barium, Dissolved	mg/L	<0.0100	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	NA	NA	0.014
Beryllium, Dissolved	mg/L	<0.00250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, Dissolved	mg/L	1.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, Dissolved	mg/L	<0.00100	<0.00100	<0.00100	NA	NA	NA	<0.00100	NA	NA	NA	NA	<0.00100	NA	NA	0.002	NA	NA	<0.00100
Calcium, Dissolved	mg/L	519	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	mg/L	0.027	<0.00500	<0.00500	NA	NA	NA	0.042	NA	NA	NA	<0.00500	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500
Cobalt, Dissolved	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	mg/L	<0.0125	NA	<0.0125	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.0125	NA	NA	0.014	NA	NA	NA
Iron, Dissolved	mg/L	0.197	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	mg/L	<0.00500	<0.00500	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500
Lithium, Dissolved	mg/L	0.341	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	513	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	mg/L	0.006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	0.265	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-35 08/16/06	HMW-35 12/27/06	HMW-54 01/12/07	HMW-54 10/02/07	HMW-54 03/31/08	HMW-54 08/11/08	HMW-55 01/11/07	HMW-55 10/01/07	HMW-55 03/31/08	HMW-55 08/08/08	HMW-56 01/10/07	HMW-57 12/11/06	HMW-57 04/10/08	HMW-57 09/04/08	HMW-58 12/12/06	HMW-58 04/04/08	HMW-58 09/03/08	HMW-59 01/03/07
Nickel, Dissolved	mg/L	0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved	mg/L	94.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	mg/L	0.153	0.147	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100	NA	NA	NA	NA	NA	<0.0100
Silver, Dissolved	mg/L	<0.00200	<0.00200	<0.00200	NA	NA	NA	<0.00200	NA	NA	NA	<0.00200	<0.00200	NA	NA	<0.00200	NA	NA	<0.00200
Sodium, Dissolved	mg/L	1,840	NA	2,960	NA	NA	NA	3,380	NA	NA	NA	NA	2,760	NA	NA	3,900	NA	NA	NA
Strontium, Dissolved	mg/L	16.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	mg/L	<0.0250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	mg/L	0.021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved	mg/L	0.045	<0.00500	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500	<0.00500	NA	NA	0.348	NA	NA	<0.00500
Parameters																			
ALKALINITY	mg/L	184	174	220	216	214	216	228	222	218	214	216	234	228	246	232	214	222	204
Alkalinity, Bicarbonate	mg/L	184	174	220	216	214	216	228	222	218	214	216	234	228	246	232	214	222	204
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	<1.00	NA	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	<1.00	NA	NA	<1.00	NA	NA	NA
Bromide	mg/L	<0.200	<1.00	<1.00	0.84	NA	NA	<1.00	1.02	NA	NA	<1.00	<1.00	NA	NA	<1.00	NA	NA	<1.00
Chloride (CL)	mg/L	521	1,020	1,940	1,730	1,600	1,770	2,180	2,030	1,920	1,960	1,700	1,930	1,870	3,040	1,920	1,800	3,280	896
CONDUCTIVITY	mS/cm	11.4	11.8	15.2	12.6	13.7	14.9	17.1	15.6	15.4	16.8	16.1	16.2	14.9	16.3	17.8	16.8	18.4	12.7
CONDUCTIVITY	umhos/cm	12,200	11,600	14,700	14,500	14,600	14,200	16,500	16,500	16,300	16,400	15,600	15,800	15,500	15,300	17,300	17,600	17,100	12,200
FLUORIDE	mg/L	<0.200	2.97	2.2	2.09	2.04	2.02	2.44	2.58	2.43	2.34	1.82	1.65	1.73	24.5	2.15	1.44	22.9	1.34
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	27.2	25.4	52.8	NA	NA	NA	NA	NA	NA	NA	43.6	36.7	NA	NA	46.7	NA	NA	9.72
Nitrate + Nitrite	mg/L	NA	NA	NA	29.6	<0.100	293	56	39.4	<0.100	355	NA	46.9	32.4	37.3	NA	27.6	41.1	NA
Nitrite	mg/L	<0.200	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	<0.500	<1.00	NA	NA	<1.00	NA	NA	<1.00
PERCHLORATE	mg/L	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	8.37	7.53	7.39	7.33	7.28	7.44	7.45	7.41	7.4	7.67	7.35	7.48	7.31	7.46	7.66	7.78	7.57	7.67
Phosphorus	mg/L	<0.0500	NA	<0.0500	NA	NA	NA	<0.0500	NA	NA	NA	NA	<0.0500	NA	NA	0.052	NA	NA	NA
SILICA	mg/L	49.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	mg/L	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	230	6,700	6,840	6,450	6,110	6,920	8,040	7,950	7,570	7,540	7,510	9,670	7,380	12,800	9,780	8,050	14,100	7,650
Temperature	deg c	21.7	16.8	18.1	23	22	21.9	19.1	23.5	21.2	22.6	15.9	17.6	18.2	20	18.9	18	19.5	18.1
TKN	mg/L	<4.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	mg/L	20,000	10,000	13,600	12,900	13,300	13,000	16,100	14,600	15,500	15,600	13,700	14,500	14,600	15,100	16,000	16,700	16,700	11,500
TOTAL ORGANIC CARBON	mg/L	0.21	NA	<1.00	<1.00	<1.00	NA	<1.00	1.17	<1.00	NA	<1.00	NA	<1.00	NA	NA	1.08	NA	1.51
Pesticides/Herbicide																			
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOR0PROPIONIC ACID	mg/L	<0.00200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/L	<0.00100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/L	<0.00100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/L	<0.00400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DB	mg/L	<0.00400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICAMBA	mg/L	<0.00200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLORPROP	mg/L	<0.00400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/L	<0.000600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-35 08/16/06	HMW-35 12/27/06	HMW-54 01/12/07	HMW-54 10/02/07	HMW-54 03/31/08	HMW-54 08/11/08	HMW-55 01/11/07	HMW-55 10/01/07	HMW-55 03/31/08	HMW-55 08/08/08	HMW-56 01/10/07	HMW-57 12/11/06	HMW-57 04/10/08	HMW-57 09/04/08	HMW-58 12/12/06	HMW-58 04/04/08	HMW-58 09/03/08	HMW-59 01/03/07
G-BHC	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/L	<0.000500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPA	mg/L	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPP	mg/L	<0.400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	mg/L	<0.00500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																			
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
1,4-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
1-Methylnaphthalene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
1-NAPHTHYLAMINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2,4,6-Trichlorophenol	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
2,4-DICHLOROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2,4-DIMETHYLPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2,4-DINITROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2,4-DINITROTOLUENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2,6-DICHLOROPHENOL	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
2,6-DINITROTOLUENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-Butoxy Ethanol	mg/L	NA	NA	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-CHLOROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-Methyl pyridine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-METHYLNAPHTHALENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-Methylphenol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-Naphthylamine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-NITROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
2-NITROPHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
3-METHYLCHLORANTHRENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
3-Methylphenol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
4-Aminobiphenyl	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
4-Chloro-3-methylphenol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
4-Methyl Phenol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
a,a-Dimethylphenethylamine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Acenaphthene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
ACENAPHTHYLENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
ACETOPHENONE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Aniline	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
ANTHRACENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
BENZIDINE	mg/L	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	NA
Benzo(a)anthracene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Benzo(a)pyrene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-35 08/16/06	HMW-35 12/27/06	HMW-54 01/12/07	HMW-54 10/02/07	HMW-54 03/31/08	HMW-54 08/11/08	HMW-55 01/11/07	HMW-55 10/01/07	HMW-55 03/31/08	HMW-55 08/08/08	HMW-56 01/10/07	HMW-57 12/11/06	HMW-57 04/10/08	HMW-57 09/04/08	HMW-58 12/12/06	HMW-58 04/04/08	HMW-58 09/03/08	HMW-59 01/03/07
Benzo(b)fluoranthene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Benzo(g,h,i)perylene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Benzo(k)fluoranthene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
BENZOIC ACID	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
BENZYL ALCOHOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
bis (2-chloroethoxy) methane	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
bis(2-Chloroethyl) ether	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
CHLOROPHENOLS	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
DIBENZOFURAN	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
DIETHYL PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
DIMETHYL PHTHALATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Di-n-butyl phthalate	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Di-n-octyl phthalate	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
DIPHENYLAMINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Diphenylhydrazine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
ETHYL METHANESULFONATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
FLUORANTHENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
FLUORENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
HEXACHLOROETHANE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
m,p-Cresol	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
M-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
METHYL METHANESULFONATE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
NITROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.000500	<0.000500	<0.00500	<0.00500	<0.000500	<0.000500	<0.00500	NA	NA	<0.000500	<0.00500	<0.00500	<0.000500	<0.00500	NA
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
n-Nitrosodi-n-propylamine	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
N-NITROSOPIPERIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA
P-CHLOROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PENTACHLOROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PENTACHLORONITROBENZENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PENTACHLOROPHENOL	mg/L	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA
PHENACETIN	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PHENANTHRENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PHENOL	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
P-NITROANILINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PROPYZAMIDE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PYRENE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
PYRIDINE	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
TPHs																			
DRO	mg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	NA	NA	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
GRO	mg/L	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	NA	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																			
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-35 08/16/06	HMW-35 12/27/06	HMW-54 01/12/07	HMW-54 10/02/07	HMW-54 03/31/08	HMW-54 08/11/08	HMW-55 01/11/07	HMW-55 10/01/07	HMW-55 03/31/08	HMW-55 08/08/08	HMW-56 01/10/07	HMW-57 12/11/06	HMW-57 04/10/08	HMW-57 09/04/08	HMW-58 12/12/06	HMW-58 04/04/08	HMW-58 09/03/08	HMW-59 01/03/07
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00500	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	<0.00500	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	NA
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00107	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00106	0.00103	0.00123	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	<0.00500	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500	0.0646	NA	NA	<0.00500	NA	NA	<0.00500
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	NA	<0.000500	<0.000500	NA	0.000669	<0.000500	NA
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	<0.00500	<0.00500	NA	NA	NA	<0.00500	NA	NA	NA	<0.00500	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100	0.00631	0.00598	0.00693	0.00657	0.0349	0.038	0.0352	0.0358	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-59 08/27/07	HMW-59 04/10/08	HMW-59 08/21/08	HMW-60 12/12/06	HMW-60 04/09/08	HMW-60 09/02/08	HMW-61 01/09/07	HMW-61 04/17/08	HMW-61 09/02/08	HMW-62 12/06/06	HMW-62 04/03/08	HMW-62 08/18/08	HMW-63 12/12/06	HMW-63 04/04/08	HMW-63 09/03/08	HMW-64 01/09/07	HMW-65 01/11/07	HMW-65 09/04/07
Explosives																			
2,4,6-TRINITROTOLUENE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
2,6-DNT / 2,4-DNT	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
2-Amino-4,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
3-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
4-Amino-2,6-Dinitrotoluene	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-amino-DNT / 2-amino-DNT	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
4-NITROTOLUENE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
RDX	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
TETRYL	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
Metals																			
ALUMINUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	mg/L	<0.0500	<0.0200	<0.0200	NA	<0.0200	<0.0200	NA	<0.0200	<0.0200	NA	<0.0200	<0.0200	NA	<0.0200	<0.0200	NA	NA	<0.0500
ARSENIC	mg/L	<0.00500	<0.00500	0.028	<0.0100	<0.00500	<0.0100	<0.0100 [<0.0100]	<0.00500	<0.0100	NA	<0.00500	<0.0100	NA	<0.00500	<0.0100	NA	NA	<0.00500
BARIUM	mg/L	0.011	0.012	0.012	0.014	0.011	0.011	<0.0100 [<0.0100]	0.007	0.007	NA	0.009	0.01	NA	0.006	0.006	NA	NA	<0.0100
BERYLLIUM	mg/L	<0.00250	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	NA	<0.00250
BORON	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	mg/L	<0.00200	<0.00100	<0.00200	0.003	<0.00100	<0.00200	<0.00100 [<0.00100]	<0.00100	<0.00200	0.001	<0.00100	<0.00200	<0.00100	<0.00100	<0.00200	<0.00100	0.003	<0.00200
CALCIUM METAL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/L	<0.00500	0.005	<0.00500	<0.00500	0.002	<0.00500	0.564 [0.540]	0.578	0.63	0.024	0.046	0.013	0.031	0.011	0.009	<0.00500	<0.00500	<0.00500
COBALT	mg/L	<0.00500	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	<0.00200	<0.00200	NA	NA	<0.00500
COPPER	mg/L	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	0.012	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.01	<0.00500	<0.00500	<0.00500
Hexavalent Chromium	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	mg/L	<0.0100	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500 [<0.00500]	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.0100
LITHIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	mg/L	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200 [<0.000200]	<0.000200	<0.000200	NA	<0.000200	<0.000200	NA	<0.000200	<0.000200	NA	NA	<0.000200
MOLYBDENUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	0.019	<0.00500	NA	<0.00500	<0.00500	NA	NA	<0.00500
POTASSIUM	mg/L	NA	NA	NA	65.9	NA	NA	74.7 [74.2]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	mg/L	<0.0200	0.026	<0.0200	<0.0100	0.026	0.022	0.0970 [0.127]	0.146	0.155	NA	0.054	0.07	NA	0.021	0.024	NA	NA	<0.0200
SILVER	mg/L	<0.00500	<0.00500	<0.00500	<0.00200	<0.00500	<0.00500	<0.00200 [<0.00200]	<0.00500	<0.00500	<0.00200	<0.00500	<0.00500	<0.00200	<0.00500	<0.00500	<0.00200	<0.00200	<0.00500
SODIUM	mg/L	NA	NA	NA	2,920	NA	NA	3,430 [3,490]	NA	NA	3,130	NA	NA	2,550	NA	NA	2,950	3,020	NA
STRONTIUM	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	mg/L	<0.0500	<0.0200	<0.0500	NA	<0.0200	<0.0500	NA	<0.0200	<0.0500	NA	<0.0200	<0.0500	NA	<0.0200	<0.0500	NA	NA	<0.0500
TIN	mg/L	<0.0250	<0.0250	<0.100	NA	<0.0250	<0.100	NA	<0.0250	<0.100	NA	<0.0250	<0.100	NA	<0.0250	<0.100	NA	NA	<0.0250
Total Cyanide	mg/L	<0.0100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0100
VANADIUM (FUME OR DUST)	mg/L	0.021	0.026	0.024	NA	0.028	0.027	NA	0.018	0.017	NA	0.012	0.011	NA	0.029	0.028	NA	NA	0.026
ZINC	mg/L	<0.0100	<0.00700	<0.00500	<0.00500	<0.00700	0.009	<0.00500 [<0.00500]	<0.00700	0.015	<0.00500	<0.00700	0.008	<0.00500	<0.00700	0.009	<0.00500	<0.00500	0.024
Metals-Dissolved																			
Aluminum, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic, Dissolved	mg/L	NA	NA	NA	<0.00500	NA	NA	<0.00500 [<0.00500]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium, Dissolved	mg/L	NA	NA	NA	0.013	NA	NA	<0.0100 [<0.0100]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium, Dissolved	mg/L	NA	NA	NA	0.003	NA	NA	<0.00100 [<0.00100]	NA	NA	0.001	NA	NA	0.003	NA	NA	<0.00100	<0.00100	NA
Calcium, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	mg/L	NA	NA	NA	<0.00500	NA	NA	0.522 [0.587]	NA	NA	0.024	NA	NA	0.022	NA	NA	<0.00500	<0.00500	NA
Cobalt, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper, Dissolved	mg/L	NA	NA	NA	<0.0125	NA	NA	<0.0125 [<0.0125]	NA	NA	<0.0125	NA	NA	<0.0125	NA	NA	<0.0125	<0.00500	NA
Iron, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	mg/L	NA	NA	NA	<0.00500	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500	<0.00500	NA
Lithium, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-59 08/27/07	HMW-59 04/10/08	HMW-59 08/21/08	HMW-60 12/12/06	HMW-60 04/09/08	HMW-60 09/02/08	HMW-61 01/09/07	HMW-61 04/17/08	HMW-61 09/02/08	HMW-62 12/06/06	HMW-62 04/03/08	HMW-62 08/18/08	HMW-63 12/12/06	HMW-63 04/04/08	HMW-63 09/03/08	HMW-64 01/09/07	HMW-65 01/11/07	HMW-65 09/04/07
Nickel, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Dissolved	mg/L	NA	NA	NA	64.2	NA	NA	73.7 [74.0]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	mg/L	NA	NA	NA	<0.0100	NA	NA	<0.0100 [0.141]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver, Dissolved	mg/L	NA	NA	NA	<0.00200	NA	NA	<0.00200 [<0.00200]	NA	NA	<0.00200	NA	NA	<0.00200	NA	NA	<0.00200	<0.00200	NA
Sodium, Dissolved	mg/L	NA	NA	NA	2,910	NA	NA	3,240 [3,390]	NA	NA	5,300	NA	NA	2,460	NA	NA	3,090	2,720	NA
Strontium, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tin, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, Dissolved	mg/L	NA	NA	NA	<0.00500	NA	NA	<0.00500 [<0.00500]	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500	<0.00500	NA
Parameters																			
ALKALINITY	mg/L	198	190	200	206	186	188	202 [208]	212	218	208	194	202	194	192	202	218	210	216
Alkalinity, Bicarbonate	mg/L	198	190	200	206	186	188	202 [208]	212	218	208	194	202	194	192	202	218	210	216
Alkalinity, Carbonate	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ammonia	mg/L	NA	NA	NA	<1.00	NA	NA	NA	NA	NA	<1.00	NA	NA	<1.00	NA	NA	<1.00	<1.00	NA
Bromide	mg/L	<0.200	NA	NA	<1.00	NA	NA	<1.00 [<1.00]	NA	NA	0.95	NA	NA	<1.00	NA	NA	1.55	<1.00	0.74
Chloride (CL)	mg/L	897	980	867	1,180	1,260	2,010	3,230 [3,590]	3,340	4,920	1,790	1,760	1,810	931	836	2,010	1,430	1,620	1,520
CONDUCTIVITY	mS/cm	11.6	11.8	12.9	12.8	12.1	13.4	18.1 [18.1]	17.6	19.4	13.6	13.1	14.4	12.5	11.9	13.2	14.3	14.2	13
CONDUCTIVITY	umhos/cm	12,300	12,300	12,600	12,500	12,700	13,200	17,700 [17,600]	18,000	18,900	13,700	13,600	13,700	12,100	12,100	12,300	13,900	13,800	13,700
FLUORIDE	mg/L	1.48	1.57	2.29	2.06	1.85	1.88	1.94 [1.78]	1.58	25.1	1.92	1.85	1.92	2.04	1.81	15.5	2.47	2.07	1.94
Hydroxide Alkalinity	mg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 [<1.00]	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Nitrate	mg/L	NA	NA	NA	25.7	NA	NA	<1.00 [133]	NA	NA	32.7	NA	NA	21.1	NA	NA	44.8	NA	NA
Nitrate + Nitrite	mg/L	16.4	<0.100	18.9	NA	21	31.6	NA	94.5	264	NA	29.4	217	NA	16.6	26.4	NA	44.5	46.6
Nitrite	mg/L	NA	NA	NA	<1.00	NA	NA	<1.00 [<1.00]	NA	NA	<0.100	NA	NA	<1.00	NA	NA	<1.00	NA	NA
PERCHLORATE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	pH Units	7.57	7.54	7.7	7.49	7.54	7.57	7.25 [7.25]	7.19	7.18	7.36	6.9	7.4	7.38	7.43	7.35	7.35	7.52	7.69
Phosphorus	mg/L	NA	NA	NA	0.082	NA	NA	<0.0500 [<0.0500]	NA	NA	<0.0500	NA	NA	<0.0500	NA	NA	<0.0500	0.052	NA
SILICA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silica, Dissolved	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	6,190	6,600	6,150	6,900	6,390	8,260	7,550 [7,790]	7,020	9,810	6,530	5,810	5,770	7,970	5,750	11,000	7,030	6,560	6,160
Temperature	deg c	21	19.1	21.2	19.4	20.1	21.7	17.5 [17.5]	18.1	20.9	16	20.5	22.1	15.2	20.6	21.1	18	18.7	22.1
TKN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Dissolved Solids	mg/L	11,100	11,700	11,600	11,600	11,800	12,000	16,200 [16,200]	16,700	16,800	12,700	12,400	12,400	11,800	11,700	11,900	12,800	13,300	12,000
TOTAL ORGANIC CARBON	mg/L	1.23	1.32	NA	NA	<1.00	NA	3.65 [1.36]	1.99	NA	NA	1.31	NA	NA	<1.00	NA	<1.00	<1.00	1.19
Pesticides/Herbicide																			
1,1,1-TRICHLORO-2,2-BIS (P-METHOXPHENYL)-ETHANE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-DICHLOR0PROPIONIC ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TP (Silvex)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-D	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DB	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDD	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CAMPHECHLOR	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICAMBA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DICHLORPROP	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DINITROBUTYL PHENOL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-59 08/27/07	HMW-59 04/10/08	HMW-59 08/21/08	HMW-60 12/12/06	HMW-60 04/09/08	HMW-60 09/02/08	HMW-61 01/09/07	HMW-61 04/17/08	HMW-61 09/02/08	HMW-62 12/06/06	HMW-62 04/03/08	HMW-62 08/18/08	HMW-63 12/12/06	HMW-63 04/04/08	HMW-63 09/03/08	HMW-64 01/09/07	HMW-65 01/11/07	HMW-65 09/04/07
G-BHC	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPA	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MCPP	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technical Chlordane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																			
1,2,3-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4,5-TETRACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRICHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2,4-TRIMETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-BENZPHENANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,3,5-Trimethylbenzene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3,5-TRINITROBENZENE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
1,4-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1-Chloronaphthalene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1-NAPHTHYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,5-TRICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4,6-Trichlorophenol	mg/L	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,4-DICHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DIMETHYLPHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,4-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2,6-DICHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
2,6-DINITROTOLUENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Butoxy Ethanol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500	<0.00500	NA
2-CHLORONAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl pyridine	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methyl-4,6-Dinitrophenol	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-METHYLNAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Methylphenol	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-Naphthylamine	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-NITROPHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,3'-DICHLOROBENZIDINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3,5,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-METHYLCHLORANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
3-Methylphenol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Aminobiphenyl	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-BROMOPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Chloro-3-methylphenol	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROPHENYL PHENYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
4-DIMETHYLAMINOAZOBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-Methyl Phenol	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone(MIBK)	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
4-NITROPHENOL	mg/L	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
7,12-DIMETHYLBENZ(A)ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
a,a-Dimethylphenethylamine	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Acenaphthene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACENAPHTHYLENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ACETOPHENONE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Aniline	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ANTHRACENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZIDINE	mg/L	<0.0250	<0.0250	<0.0250	NA	<0.0250	<0.0250	NA	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
Benzo(a)anthracene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-59 08/27/07	HMW-59 04/10/08	HMW-59 08/21/08	HMW-60 12/12/06	HMW-60 04/09/08	HMW-60 09/02/08	HMW-61 01/09/07	HMW-61 04/17/08	HMW-61 09/02/08	HMW-62 12/06/06	HMW-62 04/03/08	HMW-62 08/18/08	HMW-63 12/12/06	HMW-63 04/04/08	HMW-63 09/03/08	HMW-64 01/09/07	HMW-65 01/11/07	HMW-65 09/04/07
Benzo(b)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(g,h,i)perylene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZOIC ACID	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL ALCOHOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BENZYL BUTYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis (2-chloroethoxy) methane	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
bis(2-Chloroethyl) ether	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BIS(2-ETHYLHEXYL)PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CHLOROPHENOLS	mg/L	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
CYMENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Dibenz(a,h)anthracene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZ[A,J]ACRIDINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIBENZOFURAN	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIMETHYL PHTHALATE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-butyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Di-n-octyl phthalate	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
DIPHENYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Diphenylhydrazine	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORANTHENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
FLUORENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLORO-1,3-BUTADIENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROCYCLOPENTADIENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
HEXACHLOROETHANE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Indeno(1,2,3-cd)pyrene	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
m,p-Cresol	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
M-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
METHANAMINE, N-METHYL-N-NITROSO	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYL METHANESULFONATE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
NITROBENZENE	mg/L	<0.000500	<0.000500	<0.00500	NA	<0.000500	<0.00500	NA	<0.000500	<0.00500	<0.00500	<0.000500	<0.00500	<0.00500	<0.000500	<0.00500	<0.00500	<0.00500	<0.000500
N-NITROSODI-N-BUTYLAMINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Nitrosodi-n-propylamine	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
N-NITROSOPIPERIDINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
P-CHLOROANILINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLORONITROBENZENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PENTACHLOROPHENOL	mg/L	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
PHENACETIN	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENANTHRENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PHENOL	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
P-NITROANILINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PROPYZAMIDE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PYRIDINE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
TPHs																			
DRO	mg/L	<5.00	<5.00	<5.00	NA	<5.00	<5.00	NA	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
GRO	mg/L	<0.100	<0.100	<0.100	NA	<0.100	<0.100	NA	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
VOCs																			
1,1,1,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,1-Trichloroethane	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2,2-TETRACHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1,2-TRICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	0.00363	0.00498	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-DICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	0.00904	0.00866	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,1-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2,3-Trichloropropane	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100

Table E.21.Attachment 1
Regional Groundwater
Risk Assessment Dataset
High Energy Laser Systems Test Facility (HELSTF), U.S. Army White Sands Missile Range
White Sands Missile Range, New Mexico

Location ID: / Date Collected:	Units	HMW-59 08/27/07	HMW-59 04/10/08	HMW-59 08/21/08	HMW-60 12/12/06	HMW-60 04/09/08	HMW-60 09/02/08	HMW-61 01/09/07	HMW-61 04/17/08	HMW-61 09/02/08	HMW-62 12/06/06	HMW-62 04/03/08	HMW-62 08/18/08	HMW-63 12/12/06	HMW-63 04/04/08	HMW-63 09/03/08	HMW-64 01/09/07	HMW-65 01/11/07	HMW-65 09/04/07
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
1,2-Dibromoethane	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00500	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-DICHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,2-Dichloropropane	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,3-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
1,4-Dioxane	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500	<0.00500	NA
2,2-DICHLOROPROPANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
2-butanone	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROETHYL VINYL ETHER	mg/L	<0.00500	<0.00500	<0.00500	NA	NA	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
2-CHLOROTOLUENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
ACETONE	mg/L	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
ACRYLONITRILE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BENZENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BIS(2-CHLOROISOPROPYL)ETHER	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
BROMOBENZENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMODICHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
BROMOMETHANE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
CARBON DISULFIDE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CARBON TETRACHLORIDE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-11	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CFC-12	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBENZENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLORODIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROFORM	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	0.0012	0.00141	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
CHLOROMETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
cis-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DIBROMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
DICHLOROMETHANE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ETHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Iodomethane	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
ISOPROPYL ALCOHOL (MANUFACTURING-STRONG ACID	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500	<0.00500	NA
Isopropylbenzene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
m,p-Xylene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
M-DINITROBENZENE	mg/L	<0.000500	<0.000500	NA	NA	<0.000500	<0.000500	NA	<0.000500	<0.000500	NA	<0.000500	NA	NA	<0.000500	<0.000500	NA	NA	<0.000500
METHYL N-BUTYL KETONE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
METHYLBENZENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
MTBE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	0.00166	0.00134	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
NAPHTHALENE	mg/L	<0.00500	<0.00500	<0.00500	NA	<0.00500	<0.00500	NA	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
n-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
n-Propylbenzene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
o-Xylene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
sec-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
STYRENE (MONOMER)	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TERT-BUTYL ALCOHOL	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.00500	NA	NA	<0.00500	NA	NA	<0.00500	<0.00500	NA
tert-Butylbenzene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TETRACHLOROETHENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,2-Dichloroethene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
trans-1,3-Dichloropropene	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRANS-1,4-DICHLOROBUTENE	mg/L	<0.0100	<0.0100	<0.0100	NA	<0.0100	<0.0100	NA	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
TRIBOMOMETHANE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
TRICHLOROETHYLENE	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	0.108	0.116	0.00378	0.00369	0.00441	<0.00100	<0.00100	<0.00100	0.00925	<0.00100	<0.00100
Vinyl Chloride	mg/L	<0.00100	<0.00100	<0.00100	NA	<0.00100	<0.00100	NA	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100