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RECEIVED MAY 1996

Date: April 29, 1996
Refer to: EM/ER:96-228

Mr. Benito Garcia
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SUBJECT: FINAL VOLUNTARY CORRECTIVE ACTION (VCA) PLAN FOR ACTIVITIES AT TECHNICAL AREA (TA) 14, POTENTIAL RELEASE SITE (PRS) 14-001(f)

Dear Mr. Garcia:

Enclosed please find an informational copy of the final VCA Plan for activities in TA-14, PRS 14-001(f) to be completed in Fiscal Year 1996.

The Department of Energy (DOE) participated in developing and reviewing this plan. The VCA Checklist and Field Authorization Form have been completed and signed. DOE authorization for field work to proceed has been granted and is included with the enclosed plan.

If you have any questions, please call Gene Gould at (505) 667-0402 or Everett Trollinger at (505) 667-5801.

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,

Theodore J. Taylor, Program Manager
Los Alamos Area Office

JJ/TT/bp

Enclosure: Final VCA Plan for TA-14, PRS 14-001(f)
VCA Checklist and Field Authorization Form

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HSWA LANL 2/1095/14/14-001(f)

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Voluntary Corrective Action Plan for

Potential Release Site 14-001(f) Bullet Test Facility

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Field Unit 2

Environmental Restoration Project

April 1996

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-1017

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VOLUNTARY CORRECTIVE ACTION PLAN FOR POTENTIAL RELEASE SITE 14-001(f), BULLET TEST FACILITY

1.0 INTRODUCTION

The potential release site (PRS) at Los Alamos National Laboratory (the Laboratory/LANL) addressed in this voluntary corrective action (VCA) plan is located within LANL's western area of TA-14, formerly called Q-Site.

1.1 Site Type and Description of PRS 14-001(f)

TA-14 was established in 1944 by LANL's Explosives Division (X Division) for close observation of small explosive charges. The bullet test facility is a reinforced concrete structure 13.3 ft by 13.6 ft by 8 ft tall (LANL 1994, 1156). It was used from the late 1970s until the early to mid-1990s. The underlying sump is approximately 13 ft by 13 ft.

1.1.1 Operational History

PRS 14-001(f), the bullet test facility, used many types of bullets, including copper-jacketed lead, plastic, steel, and depleted uranium. The firing was conducted in a 10-ft-diameter steel tube so that the test material was usually contained in the tube, in the sump below the tube, or was vaporized. This PRS is discussed in the OU 1085 Work Plan in Section 5.3.

1.1.2 COPCs and Rationale for Proposed Remedial Action

Three samples were collected from this PRS, two from within the bullet test facility and one from the sump under the test facility. Analytical results show RDX (cyclotrimethylenetrinitramine) and uranium above screening action level (SAL) and manganese above background upper tolerance limit (UTL) (background is greater than the SAL).

A health-driven cleanup is recommended for this PRS based on the contaminants of potential concern (COPCs) and the presence of visible high explosives (HE). Proposed corrective action is to remove the sand from the bullet test facility and the underlying sump. If any sand is seen on the concrete outside the bullet test facility or the sump, it will be removed as well.

2.0 SITE CHARACTERIZATION

The bullet test facility contains up to 5 inches of sand toward the middle of the circular facility (approximately 40 gallons of sand), and the adjoining sump contains approximately 70 gallons of sand. The surrounding area is concrete.

The extent of contamination is contained inside the bullet test facility and sump.

2.1 RFI Information/Other Decision Data

No previous sampling has been conducted at this site. The Phase I RCRA Facility Investigation (RFI) was conducted in July 1995.

The objectives of sampling were to determine if contamination exists. At PRS 14-001(f), a total of three surface samples were collected using the approved spade and scoop technique (see Annex 7.4). Annex 7.3 shows all sample locations at this PRS and the area of suspected contamination.

All three samples collected at PRS 14-001(f) were submitted to an off-site laboratory for analysis, in accordance with the RFI Work Plan. Analysis was requested by gamma spectroscopy and for uranium, HE, semi-volatile organic compounds (SVOCs), and target analyte list (TAL) metals for all three samples. Additionally, the sample from the sump was analyzed for volatile organic compounds (VOCs). Per chain-of-custody records, the samples were submitted and analyzed within the prescribed holding times.

Since HE is a known COPC and is visible at PRS 14-001(f), sampling was conducted at two locations where the HE spot test showed no HE. Therefore, the HE analytical values are lower than the values expected during cleanup.

2.1.1 Data Quality Evaluation

The quality assurance/quality control (QA/QC) data associated with the investigation at PRS 14-001(f) (inorganics, semi-volatile and volatile organics, high explosives, and radionuclides) indicated that a majority of the sample analytical data (≈95%) were acceptable and defensible (Table 7.2-1 in Annex 7.2). The QA/QC mechanisms were generally effective in ensuring the reliability of measured data within expected limits of sampling and analytical error. Of the approximately 460 pieces of analytical data, ≈57% were qualified as either estimated undetected (UJ) or estimated (J). Of the J qualified data, approximately one-tenth were not used in the screening assessment due to QA/QC problems.

Inorganics Several inorganic analytes were J qualified and were reported as detected, even though the sample values were between the respective estimated quantitation limits (EQL) and the method detection limits. In this investigation, the analytes associated with these estimated values are considered to be undetected because the results cannot be accurately distinguished from instrument "noise" levels. Therefore, the usability of these data is affected, and the data are not used in the screening assessment. The analytes affected in this manner include antimony, arsenic, beryllium, cadmium, mercury, selenium, silver, and thallium.

In one sample, antimony, arsenic, beryllium, chromium, and vanadium had laboratory control sample recoveries, and the arsenic, barium, cadmium, chromium, cobalt, nickel, selenium, silver, thallium, and vanadium had matrix spike/matrix spike duplicate recoveries that were not within the acceptable limits. The data associated with the QC samples were qualified as either UJ or J and the data usability was not affected. The data are considered valid because the recoveries are biased high. Several inorganic analytes were also present in the laboratory blank. The sample values for these analytes were greater than 5X the blank values and were, therefore, not qualified. They are considered to be valid.

Organics HMX and methylene chloride in one sample were J qualified and reported as detected, even though the sample values were between the respective EQL and the method detection limits. In this investigation, the analytes associated with these estimated values are considered to be undetected because the results cannot be accurately distinguished from instrument "noise" levels. Therefore, the usability of these data is affected, and the data are not used in the screening assessment.

The laboratory blank and the trip blank for the one volatile organic sample had detected concentrations of acetone, 2-butanone, and methylene chloride. The sample values for these analytes were less than 10X the blank values. As a result, the presence of these analytes in the sample is considered to be due to contamination, so these values are not included in the screening assessment. In addition, the laboratory blank for one semi-volatile sample had a detected concentration of bis(chloroisopropyl)ether. The sample value for this analyte was greater than 10X the blank value; it is considered to be valid and the data usability unaffected.

The volatile organic sample exceeded the recommended 7-day extraction holding time by less than 30 days. The data are considered estimated values (i.e., UJ or J qualified), and their data usability was unaffected. The data are valid because the sample was refrigerated and degradation was not significant.

All three samples had laboratory control sample recoveries outside of the acceptable limits for three or four semi-volatile organic analytes, while another semi-volatile organic sample had matrix spike recoveries outside the acceptable limits. These data were qualified as UJ, but their usability was unaffected. These data are valid because the recoveries were within reasonable limits (>50<75%), and the analytes should have been detected if present. In addition, one semi-volatile sample had surrogate recoveries outside the acceptable limits. The data for this sample was qualified as either UJ or J, but the usability was unaffected. These data are valid because only one surrogate had low recovery, so the analytes would have been detected if present.

Two samples had the laboratory control sample recoveries outside the acceptable limits for four high explosive analytes, m-, p-, o-nitrotoluenes and nitrobenzene. These data were qualified as UJ, but their usability was unaffected. These data are valid because the recoveries were <5% below the limit, and the analytes would have been detected if present.

Radionuclides The laboratory blank for three radionuclide samples had detected concentrations of uranium-238. The sample values for this analyte in two of the samples were less than 5X the blank values, indicating that the presence of uranium-238 in these samples are due to contamination. The data usability for this sample data is affected, so these data are not used in the screening assessment. However, the sample value in the other sample was greater than 5X the blank values. As a result, the uranium-238 data for this third sample is considered to be valid, and the data usability is unaffected.

Similarly, the laboratory blank for one radionuclide sample had a detected concentration of uranium-235. The sample value for this analyte was less than 5X the blank values, indicating that the presence of uranium-235 in this sample is due to contamination. The data usability is, therefore, affected, so these data are not used in the screening assessment.

2.1.2 Sampling Results

The LANL Facility for Information Management, Analysis, and Display (FIMAD) contains all of the analytical data collected at PRS 14-001(f) as part of the RFI. The reported values for both detected and undetected chemicals are compared against the respective background UTLs and SALs. Data comparison tables of detected concentrations greater than background UTLs and SALs are provided in Annex 7.2. Based upon a review of the sampling data, the results are summarized as follows:

- Seven inorganics were detected above background UTLs. These inorganics included antimony, copper, lead, manganese, nickel, uranium (mg/kg), and zinc (Table 7.2-2).
- Six analytes — antimony, copper, lead, nickel, uranium, and zinc — had concentrations below their respective SALs and were submitted to the Multiple Chemical Evaluation (MCE) for noncarcinogenic effects (Table 7.2-3). The sum of the maximum normalized concentrations was 1.4485, which was greater than the target value of one, indicating potential adverse health effects. Therefore, antimony, copper, lead, and uranium were retained as COPCs.
- Manganese was detected above its background UTL and SAL in the surface soil at a concentration of 1410 mg/kg, and in the sump at 749 mg/kg, and was retained as a COPC (Table 7.2-6).

- Uranium-235 and uranium-238 — were detected above their background UTLs (Table 7.2-4), and were carried forward to the SAL comparison stage, whereas uranium-234 was detected below its background UTL and was eliminated from further consideration.
- Isotopic ratios of uranium-238 to uranium-234 (~10:1) indicated that the uranium detected at this site was depleted uranium.
- Uranium-235 and uranium-238 were below their respective SALs. Since uranium-238 and uranium-235 are isotopes of uranium, uranium was used in place of the isotopes for data comparison.
- Uranium (depleted) was observed to be above its radionuclide SAL of 130 mg/kg at a concentration of 141 mg/kg in the sump; therefore, it was retained as a COPC (Table 7.2-6).
- Four organics were detected in the surface soil and in the sump. These included HMX (cyclotetramethylenetetranitramine); bis(2-ethylhexyl)phthalate; 2,4,6-trinitrotoluene; and RDX (Table 7.2-5).
- Two noncarcinogenic organic analytes, HMX and trichlorofluoromethane, had concentrations below their SALs, and were submitted to the MCE (Table 7.2-3). The sum of the maximum normalized concentration was 1.4485, but neither organic was retained as a COPC because they did not contribute at least 0.1 to the normalized sum.
- Organic carcinogens, bis(2-ethylhexyl)phthalate and 2,4,6-trinitrotoluene, were below their SALs, and were submitted to the MCE (Table 7.2-3). The sum of the maximum normalized concentration was 0.4663, which was less than one, indicating adverse health effects from exposure would be unlikely. These analytes were eliminated as COPCs.
- One organic analyte, RDX, had concentrations greater than its SAL of 4 mg/kg in the surface soil and sump, and it was retained as a COPC (Table 7.2-5, Table 7.2-6).

The surface soil in the bullet test facility and the immediately adjacent sump were considered as one system for the human health assessment because the sump was open to the ambient air and to the source of contamination at the bullet test facility.

The results of the RFI screening assessment indicate that three chemicals — manganese, RDX, and uranium — have been identified as COPCs because they exceeded their respective SALs (Table 7.2-6). Four inorganic chemicals — antimony, copper, lead, and uranium — were retained as COPCs from the MCE.

2.2 Nature and Extent of Contamination

The sand is contained within the bullet test facility and the sump, and no sand was outside either structure. The bullet test facility is lined with steel, while the sump is made of concrete.

The nature and extent of the sand was determined by visual inspection of the structures.

3.0 PROPOSED REMEDY FOR PRS 14-001(f), BULLET TEST FACILITY

3.1 Description of the Proposed Remedial Action

This remedial action consists of removing a few inches of soil from two structures at the PRS. The soil is fully contained by both structures. One structure is the above-ground steel cylinder. The other is the near-surface grated sump. Both structures are easily accessible, open to the air, and neither constitutes any confined space risk.

After appropriate health and safety screening (see Annex 7.6), the soil in the bottom of the cylinder and sump will be removed by hand shoveling using nonsparking tools, and will be placed

in 55-gallon drums. If the possibility exists of metal-to-metal contact during the removal of the last few inches of soil, plastic equipment will be used. During the shoveling, representative portions of the soil will be placed in a plastic bowl or equivalent, so that, after the drum is filled, a representative composite sample of the contents of the drum will exist in the bowl. The contents of the bowl will be homogenized by hand, with a plastic spoon or equivalent to reduce the possibility of sparking, and placed in the appropriate containers for waste characterization sampling, as detailed in Section 4.0. After removal is completed, a dustpan and whisk broom will be used to remove the remaining particles, and such particles will also be placed in the 55-gallon drum as waste.

During the soil removal, any visible pieces of HE will be collected in a separate container and managed as a hazardous waste. Similarly, visible pieces of contamination, or soil chunks identified by field rad screening as being depleted uranium (DU), will be collected in a separate container and will be managed as low-level rad waste.

During the excavation of the soil, dust suppression will be performed using hand-held water sprayers. Application of water will be limited and would not result in runoff, or in the generation of a dual-phase (water and soil) waste.

Upon completion of the soil removal, tools and equipment will be decontaminated, and the decon fluid stored in bung-top 55-gallon drums, sampled for waste characterization, and disposed of accordingly. Personal protective equipment (PPE) will be cleaned, or uncleanable portions will be cut out and disposed of as waste. All drums will be stored on-site on pallets under plastic in a less-than-90-day storage area until the results of the waste characterization are received. At that time the final disposition of the drum will be determined.

If applicable, the LANL Spill or Site-Specific Prevention, Control, and Countermeasures (SPCC) Plan, the Stormwater Plan, and Air Pollution Control Procedures will be followed.

3.2 Basis for Cleanup Levels

PRS 14-001(f) lies within current LANL facility boundaries and is removed from public access roads. The anticipated future land use is expected to be exclusively for Laboratory operations (i.e., industrial land use only).

For those COPCs retained from the human health screening assessment, site-specific Preliminary Remediation Goals (PRGs) have been calculated using the modified U.S. Environmental Protection Agency (EPA) equations and LANL site-specific input parameters presented in Annex 7.1. The derivation of human health risk-based cleanup levels for this VCA is based on a nonintrusive industrial exposure scenario using Laboratory-specific default parameters for a generic worker. These default exposure parameters assume an exposure frequency of 250 days per year and a duration of 25 years. Exposure routes considered in the calculations of the PRGs include incidental ingestion and inhalation of contaminated soil.

Site-specific PRGs for the COPCs retained at this site are presented in Table 3.2-1. Typically, the Laboratory derives PRGs assuming an acceptable level of risk of 1E-06 for carcinogens, and a hazard index of one for noncarcinogens. This conservative approach is adopted to account for the presence of multiple constituents. With this approach, the residual risk remaining at the site following remediation will be within the acceptable risk range of 1E-04 to 1E-06 for carcinogens and less than a hazard index of one for noncarcinogens. The equations and assumptions used in the calculation of the PRGs are presented in Annex 7.1. The derivation of the PRG for uranium was done using RESRAD version 5.6.1 and is based on an exposure of 15 mrem/yr.

The PRG for lead in soil of 1,000 ppm has been adopted by the Laboratory for an industrial exposure scenario based on information obtained from EPA Region VI (EPA 1995). This soil PRG considers the fetal effects when a pregnant worker is exposed. Under the industrial exposure scenario, a pregnant female adult worker is the reasonable maximum exposed individual.

Comparison of the detected values of the COPCs retained from the screening assessment with their nonintrusive industrial site-specific PRGs indicates that all of the COPCs are below the site-specific PRGs, except for manganese and uranium in the sump. However, HE is known to be a COPC at this site and was visible in the soil during sampling. Therefore, the cleanup is driven by the presence of visible HE.

In addition, a multiple chemical PRG risk analysis is conducted for exposure to the following effects categories, where applicable to the site: radionuclides (residual radioactivity), carcinogenic risk, and noncarcinogenic health hazard. The multiple chemical analysis is performed when two or more confirmatory chemical concentrations are at or below their respective PRGs within one or more of the aforementioned classes/categories (Annex 7.1). The cumulative hazard index for the three noncarcinogenic COPCs (antimony, copper, and lead) was determined by adding the fractional contribution (i.e., the maximum site concentration/ PRG) for each chemical and comparing the result with the target hazard index of one. The multiple chemical PRG hazard index level at this site is 0.1469, which is below the hazard index of one. Based on this additional analysis, these inorganics are eliminated as COPCs for cleanup purposes.

Uranium (mg/kg) was not considered for the multiple chemical PRG risk analysis for noncarcinogens because the PRG is based on dose, not on the risk/hazard index. The PRG for uranium is 150 pCi/g, based on RESRAD (Annex 7.1).

TABLE 3.2-1
SITE-SPECIFIC PRGs FOR PRS 14-001(f)

COPC	Sample Value (mg/kg)	PRG[1] (mg/kg)	Rationale
Antimony	1.17 (4.37*)	818	Noncarcinogen; based on hazard index of 1
Copper	866	81800	Noncarcinogen; based on hazard index of 1
Lead	63.9 (131*)	1000[2]	Based on EPA Region VI
Manganese	1410 (749*)	809[3]	Noncarcinogen; based on hazard index of 1
RDX	43.2 (41.2*)	52	Carcinogen; based on 1E-06 acceptable risk
Uranium	9.53 (141*)[4] (3.8 pCi/g and 564 pCi/g)	150 pCi/g	Radionuclide; based on a dose of 15 mrem/yr.

[1] Based on nonintrusive industrial soil ingestion scenario.
[2] EPA 1995
* = detected sump value
[3] Based on an Ingestion (food) Reference Dose Value.
[4] Converting mg/kg (ug/g) to pCi/g (9.53 x 0.4 = 3.8 pCi/g)
Shaded areas and bolding indicates chemical exceeded PRG.
NA = Not Available (no toxicity criteria)

No carcinogenic multiple chemical PRG risk analysis was performed because there was only one analyte in this category.

3.3 Site Restoration

Because this site consists of soil inside two existing structures, site restoration is not applicable.

4.0 WASTE MANAGEMENT

4.1 Estimated Types and Volumes of Waste

Wastes expected to be generated during the VCA work at this PRS include the following:

Item	Waste Type	Anticipated Volume
Sampling waste/PPE	solid - potential hazards	< 1 55-gal. drum
Contaminated soils	solid - hazardous	5 drums (55-gal. each)
Decon waste	liquid - potential hazards	< 25 gallons

A Characterization Strategy Form (CSF) has been approved by Laboratory groups CST-5 and ESH-19. The waste characterization/strategy requirements and uncertainties of waste type and volumes described in the CSF are summarized below.

Soil and firing residues will be the waste removed from this PRS. Known contaminants may include lead, HE products, and depleted uranium. The estimated volume of soil to be removed is five 55-gallon drums. The soil will be stored on site at the PRS in the covered drums in a less-than-90-day storage area until the results of the chemical analyses are evaluated.

One representative, composite sample will be taken from each 55-gallon drum of soil. The following analyses will be performed based on Phase I RFI investigation results: Toxic Constituent Leach Procedure (TCLP) for metals, isotopic uranium, SVOCs, polychlorinated biphenyls (PCBs), VOCs, and HE. As the soil is removed from the PRS and placed in the drums, it will be screened for gross radioactivity (alpha, beta, and gamma) by hand-held instruments.

Visibly contaminated PPE and sampling equipment will be considered potentially Resource Conservation and Recovery Act (RCRA) waste. Visibly uncontaminated items will be considered nonhazardous or radioactive waste (depending on the radiological field screening results). The volume of PPE/sampling equipment generated is anticipated to be less than one 55-gallon drum. The PPE/sampling equipment will not be directly sampled.

Decontamination liquids consist of Liquinox® detergent, tap water, and distilled water and may be RCRA waste. One grab sample of the decontamination liquids will be analyzed for VOCs, SVOCs, PCBs, total metals (SW 846, 6010 method), HE, and isotopic uranium. A total volume of less than 25 gallons is anticipated to be generated.

4.2 Method of Management and Disposal

Waste soil will be stored/handled in accordance with 20 New Mexico Administrative Code (NMAC) Generator Requirements and/or DOE Order 5820.2A (Radioactive Waste Management) requirements. Wastes will be stored at this PRS in a less-than-90-day storage area or permitted storage facility until chemical analyses are completed. A final RCRA determination will be made

after the soil sample results are evaluated. This waste will then be disposed of as RCRA, mixed waste, radioactive waste, or non-hazardous waste.

Visibly contaminated PPE and sampling equipment will be segregated and managed as RCRA waste. The total volume expected is less than one 55-gallon drum, so the waste can be stored in a satellite accumulation area. The PPE/sampling equipment will be placed in sealed plastic bags inside the 55-gallon drum. This waste will be disposed of in a manner similar to that which would be used for a drum containing the highest level of RCRA, mixed, or radioactive wastes because of the difficulties of sampling PPE.

Decontamination liquids will be managed as potential RCRA waste. They will be stored in a less-than-90-day storage area. The liquids will be segregated, labeled with the PRS number, and placed inside a 55-gallon drum. The analytical results of the grab liquid sample will be used to determine the final disposal location of the liquid.

LANL CST-5 and ESH-19 personnel will aid in the determination of the final disposal location for the waste and verify the availability of treatment, storage, or disposal (TSD) space, if it is needed. Off-site disposal of mixed waste will require further analyses to meet the waste acceptance criteria of Envirocare, a Utah mixed-waste disposal facility. These additional analyses will be performed after the mixed waste status of soil in the drums is verified by the fixed laboratory results.

5.0 DESCRIPTION OF CONFIRMATORY/VERIFICATION SAMPLING

The proposed remedial action for this PRS is to remove all of the sand and other loose media from the bullet test facility and the underlying sump. This will be accomplished by hand shoveling the sand, then by sweeping the surface to ensure that all loose material is removed. The endpoint of this remedial action will be no remaining visually discernible sand in these structures. Since there will be no loose media remaining, confirmatory sampling of a physical nature is not possible, nor is it necessary. Verification of the successful attainment of the remediation goals will be achieved by a visual inspection of the site to be sure that no sand remains in the bullet test facility or corresponding sump.

6.0 ESTIMATED TIME TO COMPLETE THE ACTION AND UNCERTAINTIES

The estimated time required to complete the VCA is 3 days. This estimate is based upon a one-day mobilization, one day to complete the removal, and one day to complete demob/sample shipping, etc. The analytical results from the waste characterization are expected to be received within 30 days, and waste removal is expected within another 30 days. The total estimated time frame, from mobilization to removal of waste, is about 60 days.

There are few uncertainties with this cleanup. The amount of waste is easily identifiable. The only heavy equipment that will be necessary is a drum loader. For the less than 5-drum total waste estimate, adequate TSD capacity should exist. If, during the course of the removal, the waste volume exceeds 200% of the 5-drum estimate, the effort will be stopped and re-evaluated.

ANNEXES

ANNEX 7.1
RISK-BASED CLEANUP LEVEL ASSUMPTIONS AND CALCULATIONS

Equation 1: Direct Exposures to Carcinogenic Constituents in Industrial Soil

$$C(\text{mg/kg}) = \frac{TR \times BW_a \times AT_c \times 365 \text{ d/y}}{EF_o \times ED_o \left[\frac{IRS_o \times CSF_o}{10^6 \text{ mg/kg}} + IRA_a \times CSF_i \times \left(\frac{1}{VF_s} + \frac{1}{PEF}\right) \right]}$$

Where:

C (mg/kg) = Preliminary remedial goal for soil, based on exposure to carcinogenic constituents (mg/kg)

TR = Target cancer risk (unitless)
Considered to be 1×10^{-6}

BW_a = Body weight, adult (kg)
Considered to be 70 kg (EPA 1991b)

AT_c = Averaging Time— cancer (years)
Considered to be 70 years (EPA 1991b)

EF_o = Exposure Frequency — occupational (d/y)
Considered to be 250 d/y (EPA 1991a)

ED_o = Exposure duration — occupational (years)
Considered to be 25 years (EPA 1991b)

IRS_o = Soil ingestion — occupational (mg/day)
Considered to be 50 mg/day (EPA 1991b)

CSF = Cancer slope factor-oral $(\text{mg/kg-d})^{-1}$ (IRIS, HEAST, or ECAO)

IRA_a = Inhalation rate — adult (mg/day)
Considered to be 20 m^3/day (EPA 1991b)

CSF_i = Cancer slope factor-inhalation $(\text{mg/kg-d})^{-1}$ (IRIS, HEAST, or ECAO)

VF_s = Volatilization factor for soil (mg/kg)
Considered to be zero for chemicals with MW> 200 g/mole and Henry's Law Constant $<10^{-5}$ atm-m^3/mole

PEF = Particulate emission factor (mg/kg)
Considered to be $1.11 \times 10^{+7}$ (m^3/kg) (LANL 1993)

Equation 2: Direct Exposures to Noncarcinogenic Constituents in Industrial Soil

$$C(\text{mg/kg}) = \frac{THQ \times BW_a \times ED_o \times 365 \text{ d/y}}{EF_o \times ED_o \left[\frac{1}{RfD_o} \times \frac{IRS_o}{10^6 \text{ mg/kg}} + \frac{1}{RfD_i} \times \left(\frac{IRA_a}{VF_s} + \frac{IRA_a}{PEF}\right) \right]}$$

Where:

C(mg/kg) = Preliminary remedial goal for soil based on exposure to noncarcinogenic constituents (mg/kg)

THQ = Target hazard quotient (unitless)
Considered to be 1

BW_a = Body weight, adult (kg)
Considered to be 70 kg (EPA 1991b)

ED_o = Exposure duration — occupational (years)
Considered to be 25 years (EPA 1991b)

EF_o = Exposure Frequency — occupational (d/y)
Considered to be 250 d/y (EPA 1991a)

RfD_o = Reference dose — oral (mg/kg-d) (IRIS, HEAST, or ECAO)

IRS_o = Soil ingestion — occupational (mg/day)
Considered to be 50 mg/day (EPA 1991b)

RfD_i = Reference dose inhalation (mg/kg-d) (IRIS, HEAST, or ECAO)

IRA_a = Inhalation rate — adult (mg/day)
Considered to be 20 m^3/day (EPA 1991b)

VF_s = Volatilization factor for soil (mg/kg)
Considered to be zero for chemicals with MW> 200 g/mole and Henry's Law Constant $<10^{-5}$ atm-m^3/mole

PEF = Particulate emission factor (mg/kg)
Considered to be 1.11 x 10^{+7} (m^3/kg) (LANL 1993)

TABLE 7.1-1
SPREADSHEET FOR CALCULATING PRGs FOR COMMERCIAL/INDUSTRIAL SOIL EXPOSURE

Chemical	Oral Reference Dose (RfD) (mg/kg/day)	Oral Absorption Factor	Oral Slope Factor $(mg/kg/day)^{-1}$	Inhalation RfD (mg/kg/day)	Inhalation Slope Factor $(mg/kg/day)^{-1}$
Antimony	4E-04	0.1	NA	NA	NA
Copper	4E-02	0.97	NA	NA	NA
Lead	See Section 3.2				
Manganese	1.4E-01	0.03	NA	1.43E-05	NA
RDX	3E-03	1	11.1E-01	NA	NA
Uranium	Calculated using RESRAD				

NA = Not Available

Chemical	Nonintrusive Industrial Soil Scenario (mg/kg)		
	Noncancer PRG	Cancer PRG	PRG (Lower of Two)
Antimony	8.18E+02	N/A	8.18E+02
Copper	8.18E+04	N/A	8.18E+04
Lead	1.0E+03[1]		
Manganese	8.09E+02	N/A	8.09E+02
RDX	6.13E+03	5.2E+01	5.2E+01
Uranium	150 pCi/g (RESRAD; 15 mrem/yr)		

NA = Not Available

[1] Based on Region VI EPA level (EPA 1995)

Multiple Chemical PRG Analysis

Following cleanup operations, confirmatory sampling and analyses will be conducted for specific COPCs. If confirmatory sample concentrations are below their PRG levels for all chemicals within a suite, the site will be considered to meet cleanup criteria.

A multiple chemical PRG risk analysis will be conducted for exposure to residual radioactivity, carcinogenic risk, and noncarcinogenic health hazard when two or more confirmatory chemical concentrations are at or below their respective PRGs within one or more of the aforementioned groups. Non-radioactive chemicals with both carcinogenic and noncarcinogenic toxicity criteria will be included in both the carcinogen and noncarcinogen groups. The multiple chemical PRG risk analysis will be estimated by summing the fractional contribution (i.e., site-specific concentration/PRG) of each chemical. The site-specific concentration will be based on the maximum, or 95%, upper confidence level (UCL) of the arithmetic mean. For exposure to residual radioactivity, the fractional contribution of each will be summed and multiplied by the 15 mrem/yr target exposure level:

Multiple PRG Exposure Level (dose) = $[(dose_x/PRG_x) + (dose_y/PRG_y) + (dose_z/PRG_z)] \times 15$ mrem/yr

If the multiple PRG risk is at or below the target exposure level of 15 mrem/yr, then the site will be considered to meet the cleanup criteria for exposure to residual radioactivity.

For cancer risk estimates, the fractional contribution of each will be summed and multiplied by 10^{-6} target cancer risk:

Multiple PRG Risk = $[(conc_x/PRG_x) + (conc_y/PRG_y) + (conc_z/PRG_z)] \times 10^{-6}$

If the multiple PRG risk is at or below the target value of 10^{-6}, then the site will be considered to meet the cleanup criteria for carcinogenic risk.

For noncancer hazard estimates, the fractional contribution of each will be summed and compared with a target hazard index of one:

PRG Hazard Index = $[(conc_x/PRG_x) + (conc_y/PRG_y) + (conc_z/PRG_z)]$

If the PRG hazard index is at or below the target hazard index of one, then the site will be considered to meet the cleanup criteria for noncarcinogenic risk.

If the multiple PRG risk analysis for radionuclides, non-radioactive carcinogens, or noncarcinogens exceeds target values, further cleanup or characterization of the site may be warranted.

The Concentration Term

The maximum detected concentration will be used in the initial PRG risk analysis and the multiple PRG risk analysis. Use of the maximum detected concentration provides the worst-case analysis and is not considered to be representative of actual exposure concentrations. If maximum concentrations are at or below their respective PRG levels, and multiple PRG risk analysis target levels are not exceeded, the site will be considered to meet cleanup criteria. If, however, use of maximum concentrations results in exceeding the target levels, a 95% UCL of the arithmetic mean will be calculated and used in the PRG analysis and multiple PRG risk analysis. The 95% UCL of the mean provides a conservative estimate of the mean concentration and accounts for uncertainties due to limited sampling. If possible, the 95% UCL of the mean will be calculated

using sample concentration data gathered over the entire exposure unit for the industrial site. For exposure areas with limited data or extreme variability in the measured data, the 95% UCL of the mean may be greater than the maximum concentration. If this occurs, the maximum concentration will be used as the concentration term.

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RESRAD Data for PRS14-001f

The RESRAD program was run using scenario-specific exposure parameters taken from Derivation and Use of Radionuclide Soil Cleanup Guidelines, LANL Environmental Restoration Project, April 4, 1996.
Depleted uranium (DU) is the soil contaminant. The uranium isotopic concentrations for DU are:

U-238=1 piCi/g
U-235=0.015 pici/g
U-234=0.1 pci/g.

The contaminated zone dimensions were 15.7 m^2 in area and a thickness of 0.28m. The resultant EDE is 0.1001 mrem/yr/pCi/g of soil. The concentration (pCi/g) to which the contaminated soil must be cleaned-up to maintain a basic radiation dose limit of 15 mrem per year is therefore:

$$15 \text{ mrem/yr} \times \frac{1}{0.1001 \text{ mrem/yr/pCi/g}} = \mathbf{150 \ pCi/g}$$

Dose Conversion Factor (and Related) Parameter Summary
File: DOSFAC.BIN

Menu	Parameter	Current Value	Default	Parameter Name
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.720E+00	6.720E+00	DCF2(1)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(2)
B-1	Pb-210+D	2.320E-02	2.320E-02	DCF2(3)
B-1	Ra-226+D	8.600E-03	8.600E-03	DCF2(4)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(5)
B-1	U-234	1.320E-01	1.320E-01	DCF2(6)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(7)
B-1	U-238+D	1.180E-01	1.180E-01	DCF2(8)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.480E-02	DCF3(1)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(2)
D-1	Pb-210+D	7.270E-03	7.270E-03	DCF3(3)
D-1	Ra-226+D	1.330E-03	1.330E-03	DCF3(4)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(5)
D-1	U-234	2.830E-04	2.830E-04	DCF3(6)
D-1	U-235+D	2.670E-04	2.670E-04	DCF3(7)
D-1	U-238+D	2.690E-04	2.690E-04	DCF3(8)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(2,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(2,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(2,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(3,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(3,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(3,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(4,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(4,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(4,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(5,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(5,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(5,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(6,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(6,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(6,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(7,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(7,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(7,3)
D-34				

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: DOSFAC.BIN

enu	Parameter	Current Value	Default	Parameter Name
-34	U-238+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(8,1)
-34	U-238+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(8,2)
D-34	U-238+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(8,3)
-5	Bioaccumulation factors, fresh water, L/kg:			
-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
-5				
-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(2,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(2,2)
-5				
-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(3,1)
-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(3,2)
D-5				
-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(4,1)
-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(4,2)
D-5				
-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(5,1)
-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(5,2)
D-5				
-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(6,1)
-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(6,2)
D-5				
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(7,1)
-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(7,2)
-5				
D-5	U-238+D , fish	1.000E+01	1.000E+01	BIOFAC(8,1)
-5	U-238+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(8,2)

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.570E+01	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	2.800E-01	2.000E+00	---	THICK0
R011	Length parallel to aquifer flow (m)	1.000E+02	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	1.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): U-234	1.000E-01	0.000E+00	---	S1(6)
R012	Initial principal radionuclide (pCi/g): U-235	1.500E-02	0.000E+00	---	S1(7)
R012	Initial principal radionuclide (pCi/g): U-238	1.000E+00	0.000E+00	---	S1(8)
R012	Concentration in groundwater (pCi/L): U-234	not used	0.000E+00	---	W1(6)
R012	Concentration in groundwater (pCi/L): U-235	not used	0.000E+00	---	W1(7)
R012	Concentration in groundwater (pCi/L): U-238	not used	0.000E+00	---	W1(8)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.600E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	1.000E-03	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone effective porosity	2.000E-01	2.000E-01	---	EPCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	4.400E+02	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	4.050E+00	5.300E+00	---	BCZ
R013	Humidity in air (g/cm**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	9.990E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	4.800E-01	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	0.000E+00	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	5.200E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	2.700E+07	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	---	EPS
R014	Density of saturated zone (g/cm**3)	1.600E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	3.000E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	3.000E-01	2.000E-01	---	EPSZ
R014	Saturated zone hydraulic conductivity (m/yr)	1.000E+02	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	2.000E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	4.050E+00	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	3.000E-01	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	1.000E+01	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	---	UW

Site-Specific Parameter Summary (continued)

lenu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R015	Number of unsaturated zone strata	not used	1	---	NS
015	Unsat. zone 1, thickness (m)	not used	4.000E+00	---	H(1)
015	Unsat. zone 1, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	not used	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	not used	2.000E-01	---	EPUZ(1)
015	Unsat. zone 1, soil-specific b parameter	not used	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(1)
015	Unsat. zone 2, thickness (m)	not used	0.000E+00	---	H(2)
015	Unsat. zone 2, soil density (g/cm**3)	not used	1.500E+00	---	DENSUZ(2)
R015	Unsat. zone 2, total porosity	not used	4.000E-01	---	TPUZ(2)
015	Unsat. zone 2, effective porosity	not used	2.000E-01	---	EPUZ(2)
015	Unsat. zone 2, soil-specific b parameter	not used	5.300E+00	---	BUZ(2)
R015	Unsat. zone 2, hydraulic conductivity (m/yr)	not used	1.000E+01	---	HCUZ(2)
016	Distribution coefficients for U-234				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(6)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(6,1)
016	Unsaturated zone 2 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(6,2)
016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.027E-05	ALEACH(6)
016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(6)
R016	Distribution coefficients for U-235				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(7)
016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(7,1)
R016	Unsaturated zone 2 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(7,2)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(7)
016	Leach rate (/yr)	0.000E+00	0.000E+00	1.027E-05	ALEACH(7)
016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
016	Distribution coefficients for U-238				
016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(8,1)
R016	Unsaturated zone 2 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(8,2)
016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.027E-05	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
016	Distribution coefficients for daughter Ac-227				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(1)
016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(1,1)
016	Unsaturated zone 2 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(1,2)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.563E-05	ALEACH(1)
016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter Pa-231				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(2,1)
R016	Unsaturated zone 2 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(2,2)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.027E-05	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for daughter Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCU(3,1)
R016	Unsaturated zone 2 (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCU(3,2)
R016	Saturated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.139E-06	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R016	Distribution coefficients for daughter Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(4,1)
R016	Unsaturated zone 2 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(4,2)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.340E-06	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)
R016	Distribution coefficients for daughter Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(5,1)
R016	Unsaturated zone 2 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(5,2)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	8.571E-09	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R017	Inhalation rate (m**3/yr)	1.490E+04	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	9.000E-05	2.000E-04	---	MLINH
R017	Dilution length for airborne dust, inhalation (m)	3.000E+00	3.000E+00	---	LM
R017	Exposure duration	2.500E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	1.840E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	4.600E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	1 shows circular AREA.	FS

Site-Specific Parameter Summary (continued)

enu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
017	Ring 4	not used	0.000E+00	---	FRACA(4)
017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
018	Fruits, vegetables and grain consumption (kg/yr)	not used	1.600E+02	---	DIET(1)
018	Leafy vegetable consumption (kg/yr)	not used	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	not used	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	not used	6.300E+01	---	DIET(4)
018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
018	Drinking water intake (L/yr)	not used	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	not used	1.000E+00	---	FDW
R018	Contamination fraction of household water	0.000E+00	1.000E+00	---	FHHW
018	Contamination fraction of livestock water	not used	1.000E+00	---	FLW
018	Contamination fraction of irrigation water	not used	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	not used	-1	---	FPLANT
018	Contamination fraction of meat	not used	-1	---	FMEAT
R018	Contamination fraction of milk	not used	-1	---	FMILK
019	Livestock fodder intake for meat (kg/day)	not used	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	not used	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	not used	5.000E+01	---	LWI5
019	Livestock water intake for milk (L/day)	not used	1.600E+02	---	LWI6
019	Livestock soil intake (kg/day)	not used	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	not used	1.000E-04	---	MLFD

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	not used	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	0.000E+00	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	0.000E+00	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	not used	1.000E+00	---	FGWIR
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	not used	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	not used	1.000E+00	---	STOR_T(2)
STOR	Milk	not used	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	not used	2.000E+01	---	STOR_T(4)
STOR	Fish	not used	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	not used	7.000E+00	---	STOR_T(6)
STOR	Well water	not used	1.000E+00	---	STOR_T(7)
STOR	Surface water	not used	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	not used	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	1.500E-01	1.500E-01	---	FLOOR
R021	Bulk density of building foundation (g/cm**3)	2.400E+00	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	4.000E-01	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	3.000E-02	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	3.000E-07	3.000E-07	---	DIFFL
R021	in contaminated zone soil	2.000E-06	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	2.000E+00	2.000E+00	---	HMIX
R021	Average annual wind speed (m/sec)	3.000E+00	2.000E+00	---	WIND
R021	Average building air exchange rate (1/hr)	1.000E+00	5.000E-01	---	REXG
R021	Height of the building (room) (m)	2.500E+00	2.500E+00	---	HRM
R021	Building interior area factor	0.000E+00	0.000E+00	code computed (time dependent)	FAI
R021	Building depth below ground surface (m)	-1.000E+00	-1.000E+00	code computed (time dependent)	DMFL
R021	Emanating power of Rn-222 gas	2.500E-01	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	suppressed
4 -- meat ingestion	suppressed
5 -- milk ingestion	suppressed
6 -- aquatic foods	suppressed
7 -- drinking water	suppressed
8 -- soil ingestion	active
9 -- radon	active

Contaminated Zone Dimensions		Initial Soil Concentrations, pCi/g	
Area:	15.70 square meters	U-234	1.000E-01
Thickness:	0.28 meters	U-235	1.500E-02
Cover Depth:	0.00 meters	U-238	1.000E+00

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 15 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	1.001E-01	1.001E-01	1.000E-01	9.991E-02	9.953E-02	9.740E-02	0.000E+00	0.000E+00
M(t):	6.672E-03	6.671E-03	6.669E-03	6.661E-03	6.635E-03	6.493E-03	0.000E+00	0.000E+00

Maximum TDOSE(t): 1.001E-01 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
uclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.435E-05	0.0001	5.375E-03	0.0537	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.044E-05	0.0001
-235	3.739E-03	0.0374	7.513E-04	0.0075	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.478E-06	0.0000
U-238	4.204E-02	0.4201	4.805E-02	0.4801	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.927E-05	0.0010
otal	4.580E-02	0.4576	5.418E-02	0.5413	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.112E-04	0.0011

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
uclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.400E-03	0.0540
-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.492E-03	0.0449
-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.019E-02	0.9012
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.001E-01	1.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.435E-05	0.0001	5.375E-03	0.0537	2.724E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.044E-05	0.0001
U-235	3.739E-03	0.0374	7.515E-04	0.0075	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.479E-06	0.0000
U-238	4.203E-02	0.4200	4.805E-02	0.4802	7.321E-16	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.927E-05	0.0010
Total	4.578E-02	0.4575	5.418E-02	0.5414	2.724E-10	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.112E-04	0.0011

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.400E-03	0.0540
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.492E-03	0.0449
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.018E-02	0.9012
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.001E-01	1.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
uclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.436E-05	0.0001	5.376E-03	0.0537	2.438E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.044E-05	0.0001
-235	3.737E-03	0.0374	7.519E-04	0.0075	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.482E-06	0.0000
-238	4.199E-02	0.4198	4.805E-02	0.4803	6.746E-14	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.927E-05	0.0010
otal	4.575E-02	0.4573	5.418E-02	0.5416	2.438E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.112E-04	0.0011

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
uclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.400E-03	0.0540
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.491E-03	0.0449
-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.014E-02	0.9011
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.000E-01	1.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.441E-05	0.0001	5.376E-03	0.0538	2.654E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.044E-05	0.0001
U-235	3.734E-03	0.0374	7.542E-04	0.0075	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.493E-06	0.0000
U-238	4.188E-02	0.4191	4.805E-02	0.4809	2.509E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.927E-05	0.0010
Total	4.562E-02	0.4566	5.418E-02	0.5423	2.655E-08	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.112E-04	0.0011

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.401E-03	0.0541
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.489E-03	0.0449
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.002E-02	0.9010
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.991E-02	1.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
nclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	1.492E-05	0.0001	5.377E-03	0.0540	2.246E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.045E-05	0.0001
235	3.723E-03	0.0374	7.653E-04	0.0077	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.533E-06	0.0000
238	4.150E-02	0.4169	4.804E-02	0.4827	6.375E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.925E-05	0.0010
otal	4.524E-02	0.4545	5.419E-02	0.5444	2.247E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.112E-04	0.0011

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
nclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.403E-03	0.0543
235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.489E-03	0.0451
238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.964E-02	0.9006
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.953E-02	1.0000

um of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	2.015E-05	0.0002	5.380E-03	0.0552	1.898E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.045E-05	0.0001
U-235	3.655E-03	0.0375	8.276E-04	0.0085	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.721E-06	0.0000
U-238	3.939E-02	0.4044	4.802E-02	0.4930	1.800E-09	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.920E-05	0.0010
Total	4.306E-02	0.4421	5.423E-02	0.5567	1.899E-06	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.114E-04	0.0011

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.413E-03	0.0556
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.484E-03	0.0460
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.750E-02	0.8984
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.740E-02	1.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
uclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
uclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
U-234	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-235	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
U-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

*Sum of all water independent and dependent pathways.

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

Parent (i)	Product (j)	Branch Fraction	DSR(j,t) (mrem/yr)/(pCi/g) t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	U-234	1.000E+00	5.400E-02	5.400E-02	5.400E-02	5.400E-02	5.398E-02	5.393E-02	0.000E+00	0.000E+00
U-234	Th-230	1.000E+00	0.000E+00	1.201E-06	3.602E-06	1.201E-05	3.601E-05	1.199E-04	0.000E+00	0.000E+00
U-234	Ra-226	1.000E+00	0.000E+00	9.185E-09	8.245E-08	9.074E-07	7.934E-06	7.727E-05	0.000E+00	0.000E+00
U-234	Pb-210	1.000E+00	0.000E+00	2.862E-13	7.606E-12	2.670E-10	6.241E-09	1.522E-07	0.000E+00	0.000E+00
U-234	ΣDSR(j)		5.400E-02	5.400E-02	5.400E-02	5.401E-02	5.403E-02	5.413E-02	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	2.995E-01	2.994E-01	2.993E-01	2.991E-01	2.982E-01	2.928E-01	0.000E+00	0.000E+00
U-235	Pa-231	1.000E+00	0.000E+00	1.242E-05	3.725E-05	1.241E-04	3.721E-04	1.234E-03	0.000E+00	0.000E+00
U-235	Ac-227	1.000E+00	0.000E+00	1.128E-06	9.942E-06	1.028E-04	7.632E-04	4.960E-03	0.000E+00	0.000E+00
U-235	ΣDSR(j)		2.995E-01	2.994E-01	2.994E-01	2.993E-01	2.993E-01	2.990E-01	0.000E+00	0.000E+00
U-238	U-238	1.000E+00	9.019E-02	9.018E-02	9.014E-02	9.002E-02	8.964E-02	8.749E-02	0.000E+00	0.000E+00
U-238	U-234	1.000E+00	0.000E+00	1.531E-07	4.593E-07	1.531E-06	4.591E-06	1.529E-05	0.000E+00	0.000E+00
U-238	Th-230	1.000E+00	0.000E+00	1.702E-12	1.532E-11	1.702E-10	1.531E-09	1.700E-08	0.000E+00	0.000E+00
U-238	Ra-226	1.000E+00	0.000E+00	2.468E-15	2.281E-13	8.577E-12	2.252E-10	7.328E-09	0.000E+00	0.000E+00
U-238	Pb-210	1.000E+00	0.000E+00	0.000E+00	1.681E-17	1.918E-15	1.385E-13	1.210E-11	0.000E+00	0.000E+00
U-238	ΣDSR(j)		9.019E-02	9.018E-02	9.014E-02	9.002E-02	8.964E-02	8.750E-02	0.000E+00	0.000E+00

Branch Fraction is the cumulative factor for the j'th principal radionuclide daughter: CUMBRF(j) = BRF(1)*BRF(2)* ... BRF(j).
The DSR includes contributions from associated (half-life ≤ 0.5 yr) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 15 mrem/yr

Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	2.778E+02	2.778E+02	2.778E+02	2.777E+02	2.776E+02	2.771E+02	*6.245E+09	*6.245E+09
U-235	5.009E+01	5.009E+01	5.010E+01	5.012E+01	5.012E+01	5.017E+01	*2.160E+06	*2.160E+06
U-238	1.663E+02	1.663E+02	1.664E+02	1.666E+02	1.673E+02	1.714E+02	*3.360E+05	*3.360E+05

*At specific activity limit

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

Nuclide (i)	Initial pCi/g	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
U-234	1.000E-01	130.0 ± 0.1	5.419E-02	2.768E+02	5.400E-02	2.778E+02
U-235	1.500E-02	67.43 ± 0.07	2.996E-01	5.007E+01	2.995E-01	5.009E+01
U-238	1.000E+00	0.000E+00	9.019E-02	1.663E+02	9.019E-02	1.663E+02

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
U-234	U-234	1.000E+00	5.400E-03	5.400E-03	5.400E-03	5.400E-03	5.398E-03	5.393E-03	0.000E+00	0.000E+00
U-234	U-238	1.000E+00	0.000E+00	1.531E-07	4.593E-07	1.531E-06	4.591E-06	1.529E-05	0.000E+00	0.000E+00
U-234	ΣDOSE(j):		5.400E-03	5.400E-03	5.400E-03	5.401E-03	5.403E-03	5.408E-03	0.000E+00	0.000E+00
Th-230	U-234	1.000E+00	0.000E+00	1.201E-07	3.602E-07	1.201E-06	3.601E-06	1.199E-05	0.000E+00	0.000E+00
Th-230	U-238	1.000E+00	0.000E+00	1.702E-12	1.532E-11	1.702E-10	1.531E-09	1.700E-08	0.000E+00	0.000E+00
Th-230	ΣDOSE(j):		0.000E+00	1.201E-07	3.602E-07	1.201E-06	3.602E-06	1.201E-05	0.000E+00	0.000E+00
Ra-226	U-234	1.000E+00	0.000E+00	9.185E-10	8.245E-09	9.074E-08	7.934E-07	7.727E-06	0.000E+00	0.000E+00
Ra-226	U-238	1.000E+00	0.000E+00	2.468E-15	2.281E-13	8.577E-12	2.252E-10	7.328E-09	0.000E+00	0.000E+00
Ra-226	ΣDOSE(j):		0.000E+00	9.185E-10	8.245E-09	9.075E-08	7.937E-07	7.734E-06	0.000E+00	0.000E+00
Pb-210	U-234	1.000E+00	0.000E+00	2.862E-14	7.606E-13	2.670E-11	6.241E-10	1.522E-08	0.000E+00	0.000E+00
Pb-210	U-238	1.000E+00	0.000E+00	0.000E+00	1.681E-17	1.918E-15	1.385E-13	1.210E-11	0.000E+00	0.000E+00
Pb-210	ΣDOSE(j):		0.000E+00	2.862E-14	7.607E-13	2.670E-11	6.242E-10	1.523E-08	0.000E+00	0.000E+00
U-235	U-235	1.000E+00	4.492E-03	4.491E-03	4.490E-03	4.486E-03	4.472E-03	4.392E-03	0.000E+00	0.000E+00
Pa-231	U-235	1.000E+00	0.000E+00	1.863E-07	5.588E-07	1.862E-06	5.581E-06	1.851E-05	0.000E+00	0.000E+00
Ac-227	U-235	1.000E+00	0.000E+00	1.692E-08	1.491E-07	1.542E-06	1.145E-05	7.439E-05	0.000E+00	0.000E+00
U-238	U-238	1.000E+00	9.019E-02	9.018E-02	9.014E-02	9.002E-02	8.964E-02	8.749E-02	0.000E+00	0.000E+00

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

ıclide (j)	Parent (i)	BRF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
234	U-234	1.000E+00	1.000E-01	1.000E-01	1.000E-01	9.999E-02	9.996E-02	9.987E-02	9.961E-02	9.870E-02
·234	U-238	1.000E+00	0.000E+00	2.835E-06	8.505E-06	2.835E-05	8.502E-05	2.832E-04	8.475E-04	2.802E-03
U-234	ΣS(j):		1.000E-01	1.000E-01	1.000E-01	1.000E-01	1.000E-01	1.002E-01	1.005E-01	1.015E-01
ı-230	U-234	1.000E+00	0.000E+00	9.002E-07	2.700E-06	9.001E-06	2.700E-05	8.992E-05	2.692E-04	8.903E-04
Th-230	U-238	1.000E+00	0.000E+00	1.276E-11	1.148E-10	1.276E-09	1.148E-08	1.275E-07	1.145E-06	1.262E-05
Th-230	ΣS(j):		0.000E+00	9.002E-07	2.701E-06	9.002E-06	2.701E-05	9.005E-05	2.703E-04	9.029E-04
ı-226	U-234	1.000E+00	0.000E+00	1.950E-10	1.754E-09	1.947E-08	1.747E-07	1.920E-06	1.676E-05	1.680E-04
Ra-226	U-238	1.000E+00	0.000E+00	5.239E-16	4.853E-14	1.840E-12	4.957E-11	1.821E-09	4.803E-08	1.643E-06
-226	ΣS(j):		0.000E+00	1.950E-10	1.754E-09	1.947E-08	1.747E-07	1.922E-06	1.681E-05	1.696E-04
Pb-210	U-234	1.000E+00	0.000E+00	2.004E-12	5.328E-11	1.870E-09	4.372E-08	1.067E-06	1.360E-05	1.582E-04
Pb-210	U-238	1.000E+00	0.000E+00	0.000E+00	1.178E-15	1.344E-13	9.702E-12	8.481E-10	3.563E-08	1.499E-06
›-210	ΣS(j):		0.000E+00	2.004E-12	5.328E-11	1.870E-09	4.373E-08	1.068E-06	1.364E-05	1.597E-04
U-235	U-235	1.000E+00	1.500E-02	1.500E-02	1.500E-02	1.500E-02	1.500E-02	1.498E-02	1.495E-02	1.485E-02
ı-231	U-235	1.000E+00	0.000E+00	3.174E-07	9.521E-07	3.173E-06	9.515E-06	3.167E-05	9.462E-05	3.108E-04
-227	U-235	1.000E+00	0.000E+00	4.999E-09	4.405E-08	4.555E-07	3.386E-06	2.213E-05	8.470E-05	3.010E-04
U-238	U-238	1.000E+00	1.000E+00	1.000E+00	1.000E+00	9.999E-01	9.997E-01	9.990E-01	9.969E-01	9.898E-01

:F(i) is the branch fraction of the parent nuclide.

ANNEX 7.2
RFI ANALYTICAL RESULTS

TABLE 7.2-1
DATA QUALITY EVALUATION FOR PRS 14-001(f) SAMPLES

SUITE	BATCH NUMBER	COMMENTS
Inorganics	69029 (two samples)	Beryllium and thallium in both samples, and antimony, cadmium, selenium, and silver in one sample are J qualified and reported as detected even though the sample values are between the estimated quantitation limits (EQL) and the method detection limits. The analytes are considered to be undetected because the results cannot be accurately distinguished from instrument "noise" levels. As a result, the data usability for the analytes is affected and the values are not used in the screening assessment.
	69092 (two samples)	Mercury in one sample (same as above).
	69591 (one sample)	Antimony, arsenic, beryllium, and cadmium in the sample (same as above).

TABLE 7.2-1
DATA QUALITY EVALUATION FOR PRS 14-001(f) SAMPLES
(Continued)

SUITE	BATCH NUMBER	COMMENTS
Inorganics	69591 (one sample)	Antimony, arsenic, beryllium, chromium, and vanadium in the sample had a laboratory control sample outside the acceptable limits. Data qualified as J, but usability was unaffected. Data are valid because the recoveries are biased high.
		Arsenic, barium, cadmium, chromium, cobalt, nickel, selenium, silver, thallium, and vanadium in the sample had matrix spike/matrix spike duplicate recoveries outside acceptable limits. Data are qualified as UJ or J, but usability was unaffected. Data are valid because the recoveries are biased high.
	69029 (two samples)	Barium, cadmium, chromium, manganese, and vanadium in two samples were detected in the laboratory blank. Sample values were greater than 5X the blank values and are considered to be valid; data usability unaffected.
	69591 (one sample)	Barium, beryllium, cadmium, chromium, cobalt, manganese, nickel, and zinc in the sample were detected in the laboratory blank. Sample values were greater than 5X the blank values and are considered to be valid; data usability unaffected.
	70268 (one sample)	Mercury in the sample same as above.
VOC	69892 (one sample)	All VOCs in the sample were extracted after the recommended 7-day holding time. The sample exceeded the recommended holding time by several days. Data were considered valid estimated values (i.e., qualified UJ), and their data usability was unaffected. The data are valid because the samples were frozen which slowed the degradation of the analytes.
		Methylene chloride in the sample is J qualified and reported as detected even though the sample value is between the estimated quantitation limit (EQL) and the method detection limit. The analyte is considered to be undetected because the results cannot be accurately distinguished from instrument "noise" levels. As a result, the data usability for the analyte is affected, and the value is not used in the screening assessment.
		2-Butanone, acetone, and methylene chloride in the sample were detected in the laboratory blank. Sample concentrations were less than 10X the blank value, indicating that their presence is due to contamination. Data usability was affected, and data are not used in the screening assessment.
SVOC	69207 (two samples)	2-Chlorophenol,4-nitrophenol, and phenol in both samples had a laboratory control sample outside of acceptable limits. Data qualified as UJ, but usability was unaffected. Data are valid because the recoveries were within reasonable limits (>50<75%), and the analytes should have been detected if present.

TABLE 7.2-1
DATA QUALITY EVALUATION FOR PRS 14-001(f) SAMPLES
(Continued)

SUITE	BATCH NUMBER	COMMENTS
SVOC	69786 (one sample)	2-Chlorophenol, acenaphthene, 4-nitrophenol, and phenol in the sample same as above. Data are valid because the recoveries were within reasonable limits (>50<75%) and the analytes should have been detected if present.
	69207 (two samples)	All SVOCs for one sample had surrogate recoveries outside of the acceptable limits. Data were qualified UJ or J, but usability was unaffected. Data are valid because only one surrogate had low recovery so that the analytes would have been detected if present.
	69786 (one sample)	All SVOCs in this sample had matrix spike recoveries outside of acceptable limits. Data qualified as UJ or J, but usability was unaffected. Data are valid because the recoveries were within reasonable limits (>50<75%) and the analytes should have been detected if present.
		Bis(2-chloroisopropyl)ether in the sample was detected in the laboratory blank. Sample concentration was greater than 10X the blank value, indicating presence is not due to contamination. Data usability was unaffected and data are used in the screening assessment.
HE	68962 (two samples)	HMX in one sample is J qualified and reported as detected although the sample value is between the estimated quantitation limit (EQL) and the method detection limit. The analyte is considered to be undetected because the results cannot be accurately distinguished from instrument "noise" levels. As a result, the data usability for the analyte is affected and the value is not used in the screening assessment.
		m-, p-, o-Nitrotoluenes and nitrobenzene in both samples had a laboratory control sample outside of the acceptable limits. Data are qualified as UJ, but usability is unaffected. Data are valid because the recoveries were <5% below the limit and the analytes would have been detected if present.
Radionuclide	68714 (two samples)	Uranium-238 in both samples was detected in the laboratory blank. Sample concentrations were less than 5X the blank value, indicating presence is due to contamination. Data usability affected and data are not used in the screening assessment.
	69743 (one sample)	Uranium-235 in the sample same as above.
		Uranium-238 in the sample was detected in the laboratory blank. Sample concentrations were greater than 5X the blank value and are considered to be valid. Data usability is unaffected.

TABLE 7.2-2
INORGANICS WITH CONCENTRATIONS GREATER THAN BACKGROUND UTL FOR PRS 14-001(f)

Sample ID	Depth (in.)	Antimony (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)
LANL UTL	N/A	1.0	30.7	23.3	714
SAL	N/A	31	2800	400	380
0214-95-0053	0-1	ND	134	11.7	324
0214-95-0054	0-4	1.17	866	63.9	1410
0214-95-0055*	43-47	4.37	455	131	749

Sample ID	Depth (in.)	Nickel (mg/kg)	Uranium (mg/kg)	Zinc (mg/kg)
LANL UTL	N/A	15.2	5.45	50.8
SAL	N/A	1500	230	23000
0214-95-0053	0-1	7.78	8.54	14.4
0214-95-0054	0-4	48.8	9.53	61.5
0214-95-0055*	43-47	32.5	141	227

N/A = Not Applicable
ND = Not Detected
* = Sump

TABLE 7.2-3
MULTIPLE CHEMICAL EVALUATION - PRS 14-001(f)

ANALYTE	MAXIMUM NORMALIZED CONCENTRATIONS
SOIL-NONCARCINOGENIC	
Antimony[1]	0.1410
Copper	0.3093
Lead	0.3275
Nickel	0.0325
Zinc	0.0099
HMX	0.0153
Uranium	0.6130
Total	1.4485

[1] Analytes set in bold typeface are those that are identified as COPCs

ANALYTE	MAXIMUM NORMALIZED CONCENTRATIONS
SOIL-CARCINOGENIC	
Bis(2-ethylhexyl)phthalate	0.2443
2,4,6-Trinitrotoluene	0.222
Total	0.4663

TABLE 7.2-4
RADIONUCLIDES WITH CONCENTRATIONS GREATER THAN BACKGROUND UTL FOR PRS 14-001(f)

Sample ID	Depth (in.)	Uranium (mg/kg)	Uranium-235 (pCi/g)	Uranium-238 (pCi/g)
LANL UTL	N/A	5.45	0.08	1.82
SAL	N/A	130	10	67
0214-95-0053	0-1	8.54	ND	2.97[1]
0214-95-0054	0-4	9.53	ND	5.06[1]
0214-95-0055*	43-47	141	0.36	18

ND = Not Detected
* = Sump
[1] Considered nondetect due to blank contamination (i.e., sample value is less than 5 times blank value)

TABLE 7.2-5
ORGANICS WITH CONCENTRATIONS GREATER THAN EQLs FOR PRS 14-001(f)

Sample ID	Depth (in.)	Bis(2-ethylhexyl) phthalate (mg/kg)	2,4,6-Trinitrotoluene (mg/kg)	HMX (mg/kg)	RDX (mg/kg)
SAL	N/A	32	15	3300	4
EQL	N/A	0.33	0.188	0.75	0.75
0214-95-0053	0-1	ND	ND	7.47	ND
0214-95-0054	0-4	7.82	ND	ND	43.2
0214-95-0055*	43-47	7.08	0.33	50.5	41.2

ND = Not Detected
N/A = Not Applicable
NA = Not Analyzed
* = Sump

TABLE 7.2-6
PRS 14-001(f) COPCs IN SOIL THAT EXCEEDED SAL

Sample ID	Location ID	Depth (in.)	Manganese (mg/kg)	RDX (mg/kg)	Uranium (mg/kg)
SAL	N/A	N/A	380	4	130
0214-95-0054	14-1033	0-4	1410	43.2	9.53
0214-95-0055*	14-1034	43-47	749	41.2	141

N/A = Not Applicable
* = Sump

ample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
LB	68962	1,2-Dinitrobenzene	327	UG/KG				SURROGATE		375	87.2	1						
LB	68962	1,2-Dinitrobenzene	304	UG/KG				SURROGATE		375	81	1						
LB	68962	1,2-Dinitrobenzene	353	UG/KG				SURROGATE		375	94	1						
LB	69881	1,2-Dinitrobenzene	343	UG/KG				SURROGATE		375	91.4	1						
LB	69881	1,2-Dinitrobenzene	242	UG/KG				SURROGATE		375	64.4	1						
LB	69881	1,2-Dinitrobenzene	254	UG/KG				SURROGATE		375	67.8	1						
LB	69207	2,4,6-Tribromophenol	2.65	MG/KG				SURROGATE		3.32	80	1						
LB	69207	2,4,6-Tribromophenol	2.82	MG/KG				SURROGATE		3.29	85.7	1						
LB	69207	2,4,6-Tribromophenol	2.69	MG/KG				SURROGATE		3.3	81.6	1						
LB	69786	2,4,6-Tribromophenol	2.79	MG/KG				SURROGATE		3.28	85	1						
LB	69786	2,4,6-Tribromophenol	2.92	MG/KG				SURROGATE		3.3	88.4	1						
LB	69786	2,4,6-Tribromophenol	2.96	MG/KG				SURROGATE		3.31	89.5	1						
LB	68962	2,4,6-Trinitrotoluene	640	UG/KG	188			LCS		750	85.3	1						
LB	68962	2,4,6-Trinitrotoluene	639	UG/KG	188			LCS DUP		750	85.1	1						
LB	69881	2,4,6-Trinitrotoluene	678	UG/KG	188			LCS		750	90.4	1						
LB	69881	2,4,6-Trinitrotoluene	709	UG/KG	188			LCS DUP		750	94.5	1						
LB	68962	2,4-Dinitrotoluene	616	UG/KG	188			LCS		750	82.1	1						
LB	68962	2,4-Dinitrotoluene	642	UG/KG	188			LCS DUP		750	85.5	1						
LB	69207	2,4-Dinitrotoluene	1.37	MG/KG	0.332			LCS DUP		1.66	82.8	1						
LB	69207	2,4-Dinitrotoluene	1.34	MG/KG	0.33			LCS		1.65	81.4	1						
LB	69786	2,4-Dinitrotoluene	1.39	MG/KG	0.33			LCS DUP		1.65	84.3	1						
LB	69786	2,4-Dinitrotoluene	1.24	MG/KG	0.328			LCS		1.64	75.6	1						
LB	69881	2,4-Dinitrotoluene	706	UG/KG	188			LCS DUP		750	94.2	1						
LB	69881	2,4-Dinitrotoluene	685	UG/KG	188			LCS		750	91.3	1						
LB	68962	2,6-Dinitrotoluene	682	UG/KG	188			LCS DUP		750	90.9	1						
LB	68962	2,6-Dinitrotoluene	667	UG/KG	188			LCS		750	89	1						
LB	69881	2,6-Dinitrotoluene	767	UG/KG	188			LCS		750	102	1						
LB	69881	2,6-Dinitrotoluene	763	UG/KG	188			LCS DUP		750	102	1						
LB	68962	2-Amino-4,6-dinitrotoluene	604	UG/KG	188			LCS DUP		750	80.5	1						
LB	68962	2-Amino-4,6-dinitrotoluene	625	UG/KG	188			LCS		750	83.3	1						
LB	69881	2-Amino-4,6-dinitrotoluene	729	UG/KG	188			LCS DUP		750	97.2	1						
LB	69881	2-Amino-4,6-dinitrotoluene	698	UG/KG	188			LCS		750	93.1	1						
LB	69892	2-Butanone	23.8	UG/KG	10		V	BLANK		0		1						
LB	69207	2-Chlorophenol	2.26	MG/KG	0.33		C	LCS		3.3	68.5	1						
LB	69207	2-Chlorophenol	2.31	MG/KG	0.332		C	LCS DUP		3.32	69.7	1						
LB	69786	2-Chlorophenol	2.28	MG/KG	0.328		C	LCS		3.28	69.3	1						
LB	69786	2-Chlorophenol	2.49	MG/KG	0.33			LCS DUP		3.3	75.2	1						
LB	69207	2-Fluorobiphenyl	1.18	MG/KG				SURROGATE		1.66	71.2	1						
LB	69207	2-Fluorobiphenyl	1.33	MG/KG				SURROGATE		1.64	80.9	1						
LB	69207	2-Fluorobiphenyl	1.18	MG/KG				SURROGATE		1.65	71.8	1						
LB	69786	2-Fluorobiphenyl	1.11	MG/KG				SURROGATE		1.64	67.7	1						
LB	69786	2-Fluorobiphenyl	1.17	MG/KG				SURROGATE		1.65	70.6	1						
LB	69786	2-Fluorobiphenyl	1.23	MG/KG				SURROGATE		1.66	74.5	1						
LB	69207	2-Fluorophenol	2.38	MG/KG				SURROGATE		3.3	72	1						
LB	69207	2-Fluorophenol	2.41	MG/KG				SURROGATE		3.32	72.7	1						
LB	69207	2-Fluorophenol	2.51	MG/KG				SURROGATE		3.29	76.2	1						
LB	69786	2-Fluorophenol	2.41	MG/KG				SURROGATE		3.28	73.3	1						
LB	69786	2-Fluorophenol	2.49	MG/KG				SURROGATE		3.3	75.5	1						
LB	69786	2-Fluorophenol	2.52	MG/KG				SURROGATE		3.31	76.2	1						
LB	68962	4-Amino-2,6-dinitrotoluene	582	UG/KG	188			LCS		750	77.6	1						

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
LB	68962	4-Amino-2,6-dinitrotoluene	561	UG/KG	188		C	LCS DUP		750	74.8	1						
LB	69881	4-Amino-2,6-dinitrotoluene	743	UG/KG	188			LCS DUP		750	99.1	1						
LB	69881	4-Amino-2,6-dinitrotoluene	717	UG/KG	188			LCS		750	95.6	1						
LB	69207	4-chloro-3-methyl phenol	2.65	MG/KG	0.332			LCS DUP		3.32	79.8	1						
LB	69207	4-chloro-3-methyl phenol	2.61	MG/KG	0.33			LCS		3.3	79.1	1						
LB	69786	4-chloro-3-methyl phenol	2.85	MG/KG	0.33			LCS DUP		3.3	86.3	1						
LB	69786	4-chloro-3-methyl phenol	2.57	MG/KG	0.328			LCS		3.28	78.2	1						
LB	69207	4-Nitrophenol	2.33	MG/KG	0.663		C	LCS DUP		3.32	70.2	1						
LB	69207	4-Nitrophenol	2.54	MG/KG	0.66			LCS		3.3	76.9	1						
LB	69786	4-Nitrophenol	2.65	MG/KG	0.661			LCS DUP		3.3	80.3	1						
LB	69786	4-Nitrophenol	2.36	MG/KG	0.657		C	LCS		3.28	71.9	1						
LB	69207	Acenaphthene	1.35	MG/KG	0.332			LCS DUP		1.66	81.4	1						
LB	69207	Acenaphthene	1.41	MG/KG	0.33			LCS		1.65	85.4	1						
LB	69786	Acenaphthene	1.35	MG/KG	0.33			LCS DUP		1.65	81.8	1						
LB	69786	Acenaphthene	1.23	MG/KG	0.328		C	LCS		1.64	74.9	1						
LB	69892	Acetone	20.3	UG/KG	10		V	BLANK		0		1						
LB	69591	Aluminum	43	UG/KG	50	J	EV	BLANK		0		1						
LB	69029	Aluminum	3430000	UG/KG	5000			LCS DUP		3420000	100	2						
LB	69029	Aluminum	3630000	UG/KG	5000			LCS		3420000	106	2						
LB	69591	Aluminum	3610000	UG/KG	4950			LCS		3420000	105	2						
LB	69591	Aluminum	3350000	UG/KG	4950			LCS DUP		3420000	98.1	2						
LB	69029	Antimony	1.28	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Antimony	76600	UG/KG	1000			LCS DUP		74300	103	2						
LB	69029	Antimony	83500	UG/KG	1000			LCS		74300	112	2						
LB	69591	Antimony	83100	UG/KG	990			LCS		74300	112	2						
LB	69591	Antimony	92700	UG/KG	990		C	LCS DUP		74300	125	2						
LB	69029	Arsenic	70700	UG/KG	1000			LCS		62600	113	2						
LB	69029	Arsenic	69300	UG/KG	1000			LCS DUP		62600	111	2						
LB	69591	Arsenic	76900	UG/KG	990		C	LCS DUP		62600	123	2						
LB	69591	Arsenic	68700	UG/KG	990			LCS		62600	110	2						
LB	69029	Barium	0.107	UG/KG	10	J	EV	BLANK		0		1						
LB	69591	Barium	0.194	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Barium	203000	UG/KG	1000			LCS		197000	103	2						
LB	69029	Barium	195000	UG/KG	1000			LCS DUP		197000	99.1	2						
LB	69591	Barium	210000	UG/KG	990			LCS DUP		197000	107	2						
LB	69591	Barium	183000	UG/KG	990			LCS		197000	92.9	2						
LB	69892	Benzene	51.2	UG/KG	2			LCS DUP		50	102	1						
LB	69892	Benzene	56	UG/KG	2			LCS		50	112	1						
LB	69591	Beryllium	0.123	UG/KG	5	J	EV	BLANK		0		1						
LB	69029	Beryllium	100000	UG/KG	500			LCS		90900	110	2						
LB	69029	Beryllium	98300	UG/KG	500			LCS DUP		90900	108	2						
LB	69591	Beryllium	111000	UG/KG	495		C	LCS DUP		90900	122	2						
LB	69591	Beryllium	97200	UG/KG	495			LCS		90900	107	2						
LB	69786	bis(2-Chloroisopropyl)ether	0.258	MG/KG	0.331	J	EV	BLANK		0		1						
LB	69892	Bromofluorobenzene	54.5	UG/KG				SURROGATE		50	109	1						
LB	69892	Bromofluorobenzene	52.6	UG/KG				SURROGATE		50	105	1						
LB	69892	Bromofluorobenzene	53.6	UG/KG				SURROGATE		50	107	1						
LB	69029	Cadmium	0.12	UG/KG	5	J	EV	BLANK		0		1						
LB	69591	Cadmium	0.167	UG/KG	5	J	EV	BLANK		0		1						
LB	69029	Cadmium	131000	UG/KG	500			LCS DUP		123000	106	2						

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
LB	69029	Cadmium	134000	UG/KG	500			LCS		123000	109	2						
LB	69591	Cadmium	150000	UG/KG	495		C	LCS DUP		123000	122	2						
LB	69591	Cadmium	132000	UG/KG	495			LCS		123000	107	2						
LB	69029	Calcium	2590000	UG/KG	10000			LCS		2380000	109	2						
LB	69029	Calcium	2570000	UG/KG	10000			LCS DUP		2380000	108	2						
LB	69591	Calcium	122	UG/KG	100		V	BLANK		0		1						
LB	69591	Calcium	2640000	UG/KG	9900			LCS		2380000	111	2						
LB	69591	Calcium	2830000	UG/KG	9900			LCS DUP		2380000	119	2						
LB	68714	Cesium-137	-0.0048	PCI/G	0.0237	UI		BLANK	0.00939	0		1						
LB	69743	Cesium-137	0.00261	PCI/G	0.0207	UI		BLANK	0.00583	0		1						
LB	68714	Cesium-137	28.7	PCI/G	0.212			LCS	0.396	24.9	115	1						
LB	69743	Cesium-137	27.9	PCI/G	0.146			LCS	0.278	24.9	112	1						
LB	69892	Chlorobenzene	49.4	UG/KG	2			LCS		50	98.7	1						
LB	69892	Chlorobenzene	47.9	UG/KG	2			LCS DUP		50	95.9	1						
LB	69029	Chromium	0.754	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Chromium	85200	UG/KG	1000			LCS DUP		77700	110	2						
LB	69029	Chromium	87300	UG/KG	1000			LCS		77700	112	2						
LB	69591	Chromium	93700	UG/KG	990		C	LCS DUP		77700	121	2						
LB	69591	Chromium	87100	UG/KG	990			LCS		77700	112	2						
LB	69591	Chromium	11.7	UG/KG	10		V	BLANK		0		1						
LB	69591	Cobalt	0.255	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Cobalt	154000	UG/KG	1000			LCS		141000	109	2						
LB	69029	Cobalt	152000	UG/KG	1000			LCS DUP		141000	108	2						
LB	69591	Cobalt	149000	UG/KG	990			LCS		141000	105	2						
LB	69591	Cobalt	164000	UG/KG	990			LCS DUP		141000	116	2						
LB	69029	Copper	111000	UG/KG	1000			LCS		106000	105	2						
LB	69029	Copper	109000	UG/KG	1000			LCS DUP		106000	103	2						
LB	69591	Copper	116000	UG/KG	990			LCS DUP		106000	110	2						
LB	69591	Copper	105000	UG/KG	990			LCS		106000	98.8	2						
LB	69892	Dibromofluoromethane	50.2	UG/KG				SURROGATE		50	100	1						
LB	69892	Dibromofluoromethane	48.9	UG/KG				SURROGATE		50	97.8	1						
LB	69892	Dibromofluoromethane	47.1	UG/KG				SURROGATE		50	94.1	1						
LB	68962	HMX	622	UG/KG	750	J	E	LCS		750	83	1						
LB	68962	HMX	617	UG/KG	750	J	E	LCS DUP		750	82.2	1						
LB	69881	HMX	696	UG/KG	750	J	E	LCS		750	92.8	1						
LB	69881	HMX	834	UG/KG	750			LCS DUP		750	111	1						
LB	69029	Iron	7380000	UG/KG	5000			LCS		7530000	98.1	2						
LB	69029	Iron	6810000	UG/KG	5000			LCS DUP		7530000	90.4	2						
LB	69591	Iron	74.3	UG/KG	50		V	BLANK		0		1						
LB	69591	Iron	7460000	UG/KG	4950			LCS		7530000	99	2						
LB	69591	Iron	6710000	UG/KG	4950			LCS DUP		7530000	89	2						
LB	69029	Lead	192000	UG/KG	300			LCS		188000	102	2						
LB	69029	Lead	187000	UG/KG	300			LCS DUP		188000	99.2	2						
LB	69591	Lead	210000	UG/KG	495			LCS DUP		188000	112	2						
LB	69591	Lead	186000	UG/KG	495			LCS		188000	98.9	2						
LB	68962	m-Dinitrobenzene	636	UG/KG	188			LCS DUP		750	84.9	1						
LB	68962	m-Dinitrobenzene	610	UG/KG	188			LCS		750	81.4	1						
LB	69881	m-Dinitrobenzene	714	UG/KG	188			LCS DUP		750	95.1	1						
LB	69881	m-Dinitrobenzene	698	UG/KG	188			LCS		750	93	1						
LB	68962	m-Nitrotoluene	551	UG/KG	188		C	LCS		750	73.5	1						

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
LB	68962	m-Nitrotoluene	562	UG/KG	188		C	LCS DUP		750	74.9	1						
LB	69881	m-Nitrotoluene	687	UG/KG	188			LCS DUP		750	91.6	1						
LB	69881	m-Nitrotoluene	671	UG/KG	188			LCS		750	89.5	1						
LB	69029	Magnesium	2.95	UG/KG	10	J	EV	BLANK		0		1						
LB	69591	Magnesium	4.23	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Magnesium	3370000	UG/KG	1000			LCS		3140000	107	2						
LB	69029	Magnesium	3280000	UG/KG	1000			LCS DUP		3140000	104	2						
LB	69591	Magnesium	3330000	UG/KG	990			LCS		3140000	106	2						
LB	69591	Magnesium	3690000	UG/KG	990			LCS DUP		3140000	118	2						
LB	69029	Manganese	0.134	UG/KG	10	J	EV	BLANK		0		1						
LB	69591	Manganese	0.958	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Manganese	210000	UG/KG	1000			LCS DUP		215000	97.7	2						
LB	69029	Manganese	212000	UG/KG	1000			LCS		215000	98.5	2						
LB	69591	Manganese	209000	UG/KG	990			LCS		215000	97.2	2						
LB	69591	Manganese	227000	UG/KG	990			LCS DUP		215000	106	2						
LB	70268	Mercury	0.017	UG/KG	0.2	J	EV	BLANK		0		1						
LB	69092	Mercury	2460	UG/KG	56.5			LCS DUP		2290	107	2						
LB	69092	Mercury	2230	UG/KG	61.1			LCS		2290	97.3	2						
LB	70268	Mercury	28900	UG/KG	663			LCS DUP		32600	88.6	20						
LB	70268	Mercury	28100	UG/KG	662			LCS		32600	86.2	20						
LB	69892	Methylene Chloride	6.27	UG/KG	5		V	BLANK		0		1						
LB	69207	N-Nitrosodipropylamine	1.47	MG/KG	0.332			LCS DUP		1.66	88.5	1						
LB	69207	N-Nitrosodipropylamine	1.5	MG/KG	0.33			LCS		1.65	90.6	1						
LB	69786	N-Nitrosodipropylamine	1.4	MG/KG	0.328			LCS		1.64	85.1	1						
LB	69786	N-Nitrosodipropylamine	1.52	MG/KG	0.33			LCS DUP		1.65	91.8	1						
LB	69591	Nickel	6.94	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Nickel	73000	UG/KG	1000			LCS		70200	104	2						
LB	69029	Nickel	71800	UG/KG	1000			LCS DUP		70200	102	2						
LB	69591	Nickel	82200	UG/KG	990			LCS DUP		70200	117	2						
LB	69591	Nickel	76000	UG/KG	990			LCS		70200	108	2						
LB	68962	Nitrobenzene	544	UG/KG	188		C	LCS DUP		750	72.5	1						
LB	68962	Nitrobenzene	537	UG/KG	188		C	LCS		750	71.6	1						
LB	69881	Nitrobenzene	636	UG/KG	188			LCS		750	84.8	1						
LB	69881	Nitrobenzene	655	UG/KG	188			LCS DUP		750	87.3	1						
LB	69207	Nitrobenzene-d5	1.2	MG/KG				SURROGATE		1.65	72.9	1						
LB	69207	Nitrobenzene-d5	1.24	MG/KG				SURROGATE		1.66	74.7	1						
LB	69207	Nitrobenzene-d5	1.38	MG/KG				SURROGATE		1.64	83.9	1						
LB	69786	Nitrobenzene-d5	1.26	MG/KG				SURROGATE		1.66	76	1						
LB	69786	Nitrobenzene-d5	1.19	MG/KG				SURROGATE		1.64	72.4	1						
LB	69786	Nitrobenzene-d5	1.27	MG/KG				SURROGATE		1.65	76.7	1						
LB	68962	o-Nitrotoluene	550	UG/KG	188		C	LCS		750	73.3	1						
LB	68962	o-Nitrotoluene	561	UG/KG	188		C	LCS DUP		750	74.8	1						
LB	69881	o-Nitrotoluene	665	UG/KG	188			LCS		750	88.7	1						
LB	69881	o-Nitrotoluene	685	UG/KG	188			LCS DUP		750	91.3	1						
LB	68962	p-Nitrotoluene	528	UG/KG	188		C	LCS		750	70.4	1						
LB	68962	p-Nitrotoluene	535	UG/KG	188		C	LCS DUP		750	71.3	1						
LB	69881	p-Nitrotoluene	666	UG/KG	188			LCS		750	88.9	1						
LB	69881	p-Nitrotoluene	691	UG/KG	188			LCS DUP		750	92.1	1						
LB	69207	p-Terphenyl-d14	1.29	MG/KG				SURROGATE		1.65	78	1						
LB	69207	p-Terphenyl-d14	1.46	MG/KG				SURROGATE		1.66	87.9	1						

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
LB	69207	p-Terphenyl-d14	1.38	MG/KG				SURROGATE		1.64	83.9	1						
LB	69786	p-Terphenyl-d14	1.49	MG/KG				SURROGATE		1.66	89.8	1						
LB	69786	p-Terphenyl-d14	1.39	MG/KG				SURROGATE		1.65	83.8	1						
LB	69786	p-Terphenyl-d14	1.31	MG/KG				SURROGATE		1.64	80	1						
LB	69207	Pentachlorophenol	3.05	MG/KG	0.33			LCS		3.3	92.4	1						
LB	69207	Pentachlorophenol	3.06	MG/KG	0.332			LCS DUP		3.32	92.1	1						
LB	69786	Pentachlorophenol	2.71	MG/KG	0.328			LCS		3.28	82.6	1						
LB	69786	Pentachlorophenol	3.02	MG/KG	0.33			LCS DUP		3.3	91.5	1						
LB	69207	Phenol	1.72	MG/KG	0.332		C	LCS DUP		3.32	51.9	1						
LB	69207	Phenol	1.84	MG/KG	0.33		C	LCS		3.3	55.8	1						
LB	69786	Phenol	1.73	MG/KG	0.328		C	LCS		3.28	52.5	1						
LB	69786	Phenol	1.88	MG/KG	0.33		C	LCS DUP		3.3	56.9	1						
LB	69207	Phenol-d6	2.48	MG/KG				SURROGATE		3.3	75.2	1						
LB	69207	Phenol-d6	2.51	MG/KG				SURROGATE		3.32	75.7	1						
LB	69207	Phenol-d6	2.93	MG/KG				SURROGATE		3.29	89	1						
LB	69786	Phenol-d6	2.4	MG/KG				SURROGATE		3.28	73	1						
LB	69786	Phenol-d6	2.54	MG/KG				SURROGATE		3.3	76.8	1						
LB	69786	Phenol-d6	2.77	MG/KG				SURROGATE		3.31	83.8	1						
LB	69029	Potassium	9.5	UG/KG	100	J	EV	BLANK		0		1						
LB	69591	Potassium	9.46	UG/KG	100	J	EV	BLANK		0		1						
LB	69029	Potassium	1890000	UG/KG	10000			LCS DUP		2140000	88.5	2						
LB	69029	Potassium	1950000	UG/KG	10000			LCS		2140000	91.3	2						
LB	69591	Potassium	2010000	UG/KG	9900			LCS DUP		2140000	93.9	2						
LB	69591	Potassium	1930000	UG/KG	9900			LCS		2140000	90.1	2						
LB	69743	Protactinium-231	0	PCI/G	0.13	UI		BLANK	0	0		1						
LB	68714	Protactinium-231	0.145	PCI/G	0.134		V	BLANK	0.0842	0		1						
LB	68714	Protactinium-234	-0.0503	PCI/G	0.167	UI		BLANK	0.0641	0		1						
LB	69743	Protactinium-234	0.0431	PCI/G	0.174	UI		BLANK	0.0467	0		1						
LB	68714	Protactinium-234M	3.41	PCI/G	5.09	UI		BLANK	1.72	0		1						
LB	69743	Protactinium-234M	2.2	PCI/G	4.17	UI		BLANK	1.06	0		1						
LB	69207	Pyrene	1.51	MG/KG	0.33			LCS		1.65	91.5	1						
LB	69207	Pyrene	1.53	MG/KG	0.332			LCS DUP		1.66	92	1						
LB	69786	Pyrene	1.41	MG/KG	0.328			LCS		1.64	86.1	1						
LB	69786	Pyrene	1.49	MG/KG	0.33			LCS DUP		1.65	90	1						
LB	68962	RDX	618	UG/KG	750	J	E	LCS DUP		750	82.4	1						
LB	68962	RDX	616	UG/KG	750	J	E	LCS		750	82.1	1						
LB	69881	RDX	721	UG/KG	750	J	E	LCS DUP		750	96.2	1						
LB	69881	RDX	692	UG/KG	750	J	E	LCS		750	92.3	1						
LB	69029	Selenium	80600	UG/KG	500			LCS		86000	93.7	2						
LB	69029	Selenium	78400	UG/KG	500			LCS DUP		86000	91.2	2						
LB	69591	Selenium	88900	UG/KG	495			LCS DUP		86000	103	2						
LB	69591	Selenium	80200	UG/KG	495			LCS		86000	93.2	2						
LB	69029	Silver	134000	UG/KG	1000			LCS		117000	114	2						
LB	69029	Silver	129000	UG/KG	1000			LCS DUP		117000	110	2						
LB	69591	Silver	133000	UG/KG	990			LCS DUP		117000	113	2						
LB	69591	Silver	119000	UG/KG	990			LCS		117000	102	2						
LB	69591	Sodium	52.1	UG/KG	100	J	EV	BLANK		0		1						
LB	69029	Sodium	284000	UG/KG	10000			LCS DUP		313000	90.7	2						
LB	69029	Sodium	291000	UG/KG	10000			LCS		313000	92.8	2						
LB	69591	Sodium	312000	UG/KG	9900			LCS DUP		313000	99.7	2						

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
LB	69591	Sodium	286000	UG/KG	9900			LCS		313000	91.5	2						
LB	68962	sym-Trinitrobenzene	612	UG/KG	188			LCS DUP		750	81.7	1						
LB	68962	sym-Trinitrobenzene	603	UG/KG	188			LCS		750	80.4	1						
LB	69881	sym-Trinitrobenzene	762	UG/KG	188			LCS DUP		750	102	1						
LB	69881	sym-Trinitrobenzene	728	UG/KG	188			LCS		750	97	1						
LB	68962	TETRYL	775	UG/KG	375			LCS		750	103	1						
LB	68962	TETRYL	787	UG/KG	375			LCS DUP		750	105	1						
LB	69881	TETRYL	662	UG/KG	375			LCS		750	88.2	1						
LB	69881	TETRYL	733	UG/KG	375			LCS DUP		750	97.7	1						
LB	69029	Thallium	97800	UG/KG	1000			LCS DUP		87100	112	2						
LB	69029	Thallium	99400	UG/KG	1000			LCS		87100	114	2						
LB	69591	Thallium	94500	UG/KG	990			LCS		87100	108	2						
LB	69591	Thallium	105000	UG/KG	990		C	LCS DUP		87100	121	2						
LB	68714	Thorium-230	0.0369	PCI/G	0.052	UI		BLANK	0.0185	0		1						
LB	69743	Thorium-230	0.014	PCI/G	0.0483	UI		BLANK	0.0133	0		1						
LB	68714	Thorium-231	-0.0334	PCI/G	0.108	UI		BLANK	0.0451	0		1						
LB	69743	Thorium-231	0.0387	PCI/G	0.123	UI		BLANK	0.0359	0		1						
LB	68714	Thorium-234	0.157	PCI/G	0.421	UI		BLANK	0.186	0		1						
LB	69743	Thorium-234	1.34	PCI/G	0.272		V	BLANK	0.134	0		1						
LB	69892	Toluene	49.8	UG/KG	2			LCS DUP		50	99.6	1						
LB	69892	Toluene	50.2	UG/KG	2			LCS		50	100	1						
LB	69892	Toluene-d8	52	UG/KG				SURROGATE		50	104	1						
LB	69892	Toluene-d8	52.5	UG/KG				SURROGATE		50	105	1						
LB	69892	Toluene-d8	53.3	UG/KG				SURROGATE		50	107	1						
LB	68716	Total Uranium	-0.012	UG/G	0.0118	UI		BLANK	0.000154	0		1						
LB	69761	Total Uranium	-0.0135	UG/G	0.0118	UI		BLANK	0.000632	0		1						
LB	68716	Total Uranium	1.07	UG/G	0.0118			LCS	0.0344	1	107	1						
LB	69761	Total Uranium	0.89	UG/G	0.0118			LCS	0.0296	1	89	1						
LB	69892	Trichloroethylene	50.7	UG/KG	2			LCS		50	101	1						
LB	69892	Trichloroethylene	47.3	UG/KG	2			LCS DUP		50	94.6	1						
LB	68714	Uranium-234	0.00411	PCI/G	0.0898	UI		BLANK	0.0339	0		1						
LB	69743	Uranium-234	0.00666	PCI/G	0.0845	UI		BLANK	0.0235	0		1						
LB	68714	Uranium-235	0.104	PCI/G	0.135	UI		BLANK	0.0802	0		1						
LB	69743	Uranium-235	0.166	PCI/G	0.13		V	BLANK	0.0572	0		1						
LB	68714	Uranium-238	1.43	PCI/G	0.766		V	BLANK	0.265	0		1						
LB	69743	Uranium-238	1.8	PCI/G	0.463		V	BLANK	0.237	0		1						
LB	69029	Vanadium	0.346	UG/KG	10	J	EV	BLANK		0		1						
LB	69029	Vanadium	206000	UG/KG	1000			LCS		183000	113	2						
LB	69029	Vanadium	201000	UG/KG	1000			LCS DUP		183000	110	2						
LB	69591	Vanadium	196000	UG/KG	990			LCS		183000	107	2						
LB	69591	Vanadium	225000	UG/KG	990		C	LCS DUP		183000	123	2						
LB	69591	Zinc	17.5	UG/KG	20	J	EV	BLANK		0		1						
LB	69029	Zinc	258000	UG/KG	2000			LCS DUP		265000	97.2	2						
LB	69029	Zinc	263000	UG/KG	2000			LCS		265000	99.4	2						
LB	69591	Zinc	253000	UG/KG	1980			LCS		265000	95.5	2						
LB	69591	Zinc	279000	UG/KG	1980			LCS DUP		265000	105	2						
0214-95-0053	68962	1,2-Dinitrobenzene	314	UG/KG				SURROGATE		375	83.8	5	D	Soil				
0214-95-0053	69207	2,4,6-Tribromophenol	3.34	MG/KG				SURROGATE		3.29	101	1	D	Soil				
0214-95-0053	69207	2-Chlorophenol	0.329	MG/KG	0.329	UJ	C	NONE		0		1	D	Soil	330			
0214-95-0053	69207	2-Fluorobiphenyl	1.33	MG/KG				SURROGATE		1.64	80.8	1	D	Soil				

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0053	69207	2-Fluorophenol	2.48	MG/KG				SURROGATE		3.29	75.5	1	D	Soil				
0214-95-0053	68962	4-Amino-2,6-dinitrotoluene	938	UG/KG	938	UJ	C	NONE		0		5	D	Soil				
0214-95-0053	69207	4-Nitrophenol	0.657	MG/KG	0.657	UJ	C	NONE		0		1	D	Soil				
0214-95-0053	69029	Aluminum	2000	MG/KG	2.5			NONE		0		1	D	Soil	77000	38700	MG/KG	
0214-95-0053	69029	Antimony	0.327	MG/KG	0.5	J	EV	NONE		0		1	D	Soil	31	1	MG/KG	
0214-95-0053	69029	Arsenic	1.56	MG/KG	0.5			NONE		0		1	D	Soil		7.82	MG/KG	
0214-95-0053	69029	Barium	26.5	MG/KG	0.5		V	NONE		0		1	D	Soil	5300	315	MG/KG	
0214-95-0053	69029	Beryllium	0.15	MG/KG	0.25	J	E	NONE		0		1	D	Soil		1.95	MG/KG	
0214-95-0053	69029	Cadmium	0.0754	MG/KG	0.25	J	EV	NONE		0		1	D	Soil	38	2.7	MG/KG	
0214-95-0053	69029	Calcium	5320	MG/KG	5			NONE		0		1	D	Soil		6120	MG/KG	
0214-95-0053	69029	Chromium	6.82	MG/KG	0.5		V	NONE		0		1	D	Soil	30	19.3	MG/KG	
0214-95-0053	69029	Cobalt	2.96	MG/KG	0.5			NONE		0		1	D	Soil	4600	19.2	MG/KG	
0214-95-0053	69029	Copper	134	MG/KG	0.5			NONE		0		1	D	Soil	2800	30.7	MG/KG	
0214-95-0053	68962	HMX	7470	UG/KG	3750			NONE		0		5	D	Soil				
0214-95-0053	69029	Iron	6000	MG/KG	2.5			NONE		0		1	D	Soil		21300	MG/KG	
0214-95-0053	69029	Lead	11.7	MG/KG	0.25			NONE		0		1	D	Soil	400	23.3	MG/KG	
0214-95-0053	68962	m-Nitrotoluene	938	UG/KG	938	UJ	C	NONE		0		5	D	Soil				
0214-95-0053	69029	Magnesium	860	MG/KG	0.5		V	NONE		0		1	D	Soil		4610	MG/KG	
0214-95-0053	69029	Manganese	324	MG/KG	0.5		V	NONE		0		1	D	Soil		714	MG/KG	
0214-95-0053	69029	Nickel	7.78	MG/KG	0.5			NONE		0		1	D	Soil	1500	15.2	MG/KG	
0214-95-0053	68962	Nitrobenzene	0.938	MG/KG	0.938	UJ	C	NONE		0		5	D	Soil	33			
0214-95-0053	69207	Nitrobenzene-d5	1.32	MG/KG				SURROGATE		1.64	80.1	1	D	Soil				
0214-95-0053	68962	o-Nitrotoluene	938	UG/KG	938	UJ	C	NONE		0		5	D	Soil				
0214-95-0053	68962	p-Nitrotoluene	0.938	MG/KG	0.938	UJ	C	NONE		0		5	D	Soil	650			
0214-95-0053	69207	p-Terphenyl-d14	1.39	MG/KG				SURROGATE		1.64	84.7	1	D	Soil				
0214-95-0053	69207	Phenol	0.329	MG/KG	0.329	UJ	C	NONE		0		1	D	Soil	39000			
0214-95-0053	69207	Phenol-d6	2.78	MG/KG				SURROGATE		3.29	84.5	1	D	Soil				
0214-95-0053	69029	Potassium	323	MG/KG	5		V	NONE		0		1	D	Soil		3410	MG/KG	
0214-95-0053	68714	Protactinium-231	2.06	PCI/G	0.153		V	NONE	0.15	0		1	D	Soil				
0214-95-0053	68714	Protactinium-234	-0.0236	PCI/G	0.211	UI		NONE	0.0811	0		1	D	Soil				
0214-95-0053	68714	Protactinium-234M	2.07	PCI/G	5.37	UI		NONE	1.93	0		1	D	Soil				
0214-95-0053	69029	Selenium	0.185	MG/KG	0.25	J	E	NONE		0		1	D	Soil	380	1.7	MG/KG	
0214-95-0053	69029	Silver	0.257	MG/KG	0.5	J	E	NONE		0		1	D	Soil		1.61	MG/KG	
0214-95-0053	69029	Sodium	672	MG/KG	5			NONE		0		1	D	Soil		915	MG/KG	
0214-95-0053	69029	Thallium	0.139	MG/KG	0.5	J	E	NONE		0		1	D	Soil		1	MG/KG	
0214-95-0053	68714	Thorium-230	0.485	PCI/G	0.0484			NONE	0.0536	0		1	D	Soil	0.18			X
0214-95-0053	68714	Thorium-231	0.000676	PCI/G	0.132	UI		NONE	0.0528	0		1	D	Soil				
0214-95-0053	68714	Thorium-234	1.72	PCI/G	0.296			NONE	0.241	0		1	D	Soil				
0214-95-0053	68716	Total Uranium		MG/KG				NONE	0.11	0		1	D	Soil	230	5.45	MG/KG	
0214-95-0053	68714	Uranium-234	0.597	PCI/G	0.0992			NONE	0.0737	0		1	D	Soil	13	1.94	PCI/G	
0214-95-0053	68714	Uranium-235	0.141	PCI/G	0.135			NONE	0.0976	0		1	D	Soil	10	0.084	PCI/G	
0214-95-0053	68714	Uranium-238	2.91	PCI/G	0.838	V	V	NONE	0.892	0		1	D	Soil	67	1.82	PCI/G	
0214-95-0053	69029	Vanadium	9.81	MG/KG	0.5		V	NONE		0		1	D	Soil	540	41.9	MG/KG	
0214-95-0053	69029	Zinc	14.4	MG/KG	1			NONE		0		1	D	Soil	23000	50.8	MG/KG	
0214-95-0054	69207	1,2,4-Trichlorobenzene	1.33	MG/KG	1.33	UJ	O	NONE		0		4	D	Soil	620			
0214-95-0054	69207	1,2-Dichlorobenzene	1.33	MG/KG	1.33	UJ	O	NONE		0		4	D	Soil	2300			
0214-95-0054	68962	1,2-Dinitrobenzene	0	UG/KG				SURROGATE		375	0	50	D	Soil				
0214-95-0054	69207	1,2-Diphenylhydrazine	1.33	MG/KG	1.33	UJ	O	NONE		0		4	D	Soil	0.56			X
0214-95-0054	69207	1,3-Dichlorobenzene	1.33	MG/KG	1.33	UJ	O	NONE		0		4	D	Soil	2800			
0214-95-0054	69207	1,4-Dichlorobenzene	1.33	MG/KG	1.33	UJ	O	NONE		0		4	D	Soil	7.4			

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0054	69207	2,4,5-Trichlorophenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	6500			
0214-95-0054	69207	2,4,6-Tribromophenol	3.45	MG/KG		J	O	SURROGATE		3.32	104	4	D	Soil				
0214-95-0054	69207	2,4,6-Trichlorophenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	40			
0214-95-0054	69207	2,4-Dichlorophenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	200			
0214-95-0054	69207	2,4-Dimethylphenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	1300			
0214-95-0054	69207	2,4-Dinitrophenol	2.66	MG/KG	2.66	W	O	NONE		0		4	D	Soil	130			
0214-95-0054	69207	2,4-Dinitrotoluene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	130			
0214-95-0054	69207	2,6-Dinitrotoluene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	65			
0214-95-0054	69207	2-Chloronaphthalene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	5200			
0214-95-0054	69207	2-Chlorophenol	1.33	MG/KG	1.33	W	OC	NONE		0		4	D	Soil	330			
0214-95-0054	69207	2-Fluorobiphenyl	1.79	MG/KG		J	O	SURROGATE		1.66	108	4	D	Soil				
0214-95-0054	69207	2-Fluorophenol	3.39	MG/KG		J	O	SURROGATE		3.32	102	4	D	Soil				
0214-95-0054	69207	2-methyl-4,6-dinitrophenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	2-Methylnaphthalene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	2-Nitrophenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	3,3'-Dichlorobenzidine	6.64	MG/KG	6.64	W	O	NONE		0		4	D	Soil	0.99			X
0214-95-0054	69207	4,4'-DDD	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	1.9			
0214-95-0054	69207	4,4'-DDE	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	1.3			X
0214-95-0054	69207	4,4'-DDT	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	1.3			X
0214-95-0054	68962	4-Amino-2,6-dinitrotoluene	9380	UG/KG	9380	W	C	NONE		0		50	D	Soil				
0214-95-0054	69207	4-Bromophenyl phenyl ether	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	4-chloro-3-methyl phenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	4-Chloroaniline	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	260			
0214-95-0054	69207	4-Chlorophenyl phenyl ether	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	4-Nitrophenol	2.66	MG/KG	2.66	W	OC	NONE		0		4	D	Soil				
0214-95-0054	69207	Acenaphthene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	360			
0214-95-0054	69207	Acenaphthylene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Acetophenone	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	4200			
0214-95-0054	69207	Aldrin	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.026			X
0214-95-0054	69207	alpha-BHC	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.071			X
0214-95-0054	69029	Aluminum	5220	MG/KG	2.5			NONE		0		1	D	Soil	77000	38700	MG/KG	
0214-95-0054	69207	Aniline	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	19			
0214-95-0054	69207	Anthracene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	19			
0214-95-0054	69029	Antimony	1.17	MG/KG	0.5		V	NONE		0		1	D	Soil	31	1	MG/KG	
0214-95-0054	69029	Arsenic	1.43	MG/KG	0.5			NONE		0		1	D	Soil		7.82	MG/KG	
0214-95-0054	69029	Barium	86.4	MG/KG	0.5		V	NONE		0		1	D	Soil	5300	315	MG/KG	
0214-95-0054	69207	Benzidine	6.64	MG/KG	6.64	W	O	NONE		0		4	D	Soil	0.0019			X
0214-95-0054	69207	Benzo(a)anthracene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.61			X
0214-95-0054	69207	Benzo(a)pyrene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.061			X
0214-95-0054	69207	Benzo(b)fluoranthene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.61			X
0214-95-0054	69207	Benzo(ghi)perylene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Benzo(k)fluoranthene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	6.1			
0214-95-0054	69207	Benzoic Acid	2.66	MG/KG	2.66	W	O	NONE		0		4	D	Soil	100000			
0214-95-0054	69207	Benzyl Alcohol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	20000			
0214-95-0054	69029	Beryllium	0.198	MG/KG	0.25	J	E	NONE		0		1	D	Soil		1.95	MG/KG	
0214-95-0054	69207	beta-BHC	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.25			X
0214-95-0054	69207	bis(2-Chloroethoxy)methane	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	bis(2-Chloroethyl) ether	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.074			X
0214-95-0054	69207	bis(2-Chloroisopropyl)ether	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	6.3			
0214-95-0054	69207	bis(2-Ethylhexyl)phthalate	7.82	MG/KG	1.33	J	O	NONE		0		4	D	Soil	32			

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Norm Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0054	69207	Butyl benzyl phthalate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	13000			
0214-95-0054	69029	Cadmium	0.597	MG/KG	0.25		V	NONE		0		1	D	Soil	38	2.7	MG/KG	
0214-95-0054	69029	Calcium	3690	MG/KG	5			NONE		0		1	D	Soil		6120	MG/KG	
0214-95-0054	69029	Chromium	17.7	MG/KG	0.5		V	NONE		0		1	D	Soil	30	19.3	MG/KG	
0214-95-0054	69207	Chrysene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	24			
0214-95-0054	69029	Cobalt	3.82	MG/KG	0.5			NONE		0		1	D	Soil	4600	19.2	MG/KG	
0214-95-0054	69029	Copper	866	MG/KG	0.5			NONE		0		1	D	Soil	2800	30.7	MG/KG	
0214-95-0054	69207	delta-BHC	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Di-n-butyl phthalate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	6500			
0214-95-0054	69207	Di-n-octyl phthalate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	1300			
0214-95-0054	69207	Dibenzo(a,h)anthracene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.061			X
0214-95-0054	69207	Dibenzofuran	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	260			
0214-95-0054	69207	Dieldrin	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.028			X
0214-95-0054	69207	Diethyl phthalate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	52000			
0214-95-0054	69207	Dimethyl phthalate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	100000			
0214-95-0054	69207	Endosulfan I	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Endosulfan II	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Endosulfan sulfate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Endrin	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	20			
0214-95-0054	69207	Endrin aldehyde	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Fluoranthene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	2600			
0214-95-0054	69207	Fluorene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	300			
0214-95-0054	69207	gamma-BHC	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.25			X
0214-95-0054	69207	Heptachlor	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.099			X
0214-95-0054	69207	Heptachlor epoxide	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.049			X
0214-95-0054	69207	Hexachlorobenzene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.28			X
0214-95-0054	69207	Hexachlorobutadiene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	5.7			
0214-95-0054	69207	Hexachlorocyclopentadiene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	450			
0214-95-0054	69207	Hexachloroethane	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	32			
0214-95-0054	68962	HMX	11800	UG/KG	37500	J	E	NONE		0		50	D	Soil				
0214-95-0054	69207	Indeno(1,2,3-c,d)pyrene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.61			X
0214-95-0054	69029	Iron	8900	MG/KG	2.5			NONE		0		1	D	Soil		21300	MG/KG	
0214-95-0054	69207	Isophorone	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	470			
0214-95-0054	69029	Lead	63.9	MG/KG	0.25			NONE		0		1	D	Soil	400	23.3	MG/KG	
0214-95-0054	69207	m,p-Cresol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	m-Nitroaniline	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	68962	m-Nitrotoluene	9380	UG/KG	9380	W	C	NONE		0		50	D	Soil				
0214-95-0054	69029	Magnesium	1260	MG/KG	0.5		V	NONE		0		1	D	Soil		4610	MG/KG	
0214-95-0054	69029	Manganese	1410	MG/KG	2.5		V	NONE		0		5	D	Soil		714	MG/KG	
0214-95-0054	69092	Mercury	0.0158	MG/KG	0.0326	J	E	NONE		0		1	D	Soil	23	0.1	MG/KG	
0214-95-0054	69207	N-Nitrosodimethylamine	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.0087			X
0214-95-0054	69207	N-Nitrosodiphenylamine	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	91			
0214-95-0054	69207	N-Nitrosodipropylamine	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	0.063			X
0214-95-0054	69207	Naphthalene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	800			
0214-95-0054	69029	Nickel	48.8	MG/KG	0.5			NONE		0		1	D	Soil	1500	15.2	MG/KG	
0214-95-0054	68962	Nitrobenzene	9.38	MG/KG	9.38	W	C	NONE		0		50	D	Soil	33			
0214-95-0054	69207	Nitrobenzene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	33			
0214-95-0054	69207	Nitrobenzene-d5	1.68	MG/KG		J	O	SURROGATE		1.66	101	4	D	Soil				
0214-95-0054	69207	o-Cresol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	3300			
0214-95-0054	69207	o-Nitroaniline	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	3.9			

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0054	68962	o-Nitrotoluene	9380	UG/KG	9380	W	C	NONE		0		50	D	Soil				
0214-95-0054	69207	p-Nitroaniline	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	68962	p-Nitrotoluene	9.38	MG/KG	9.38	W	C	NONE		0		50	D	Soil	650			
0214-95-0054	69207	p-Terphenyl-d14	2.07	MG/KG		J	O	SURROGATE		1.66	125	4	D	Soil				
0214-95-0054	69207	Pentachlorophenol	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	2.5			
0214-95-0054	69207	Phenanthrene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	69207	Phenol	1.33	MG/KG	1.33	W	OC	NONE		0		4	D	Soil	39000			
0214-95-0054	69207	Phenol-d6	3.75	MG/KG		J	O	SURROGATE		3.32	113	4	D	Soil				
0214-95-0054	69029	Potassium	585	MG/KG	5		V	NONE		0		1	D	Soil		3410	MG/KG	
0214-95-0054	68714	Protactinium-231	3.19	PCI/G	0.421		V	NONE	0.26	0		1	D	Soil				
0214-95-0054	68714	Protactinium-234	-0.0985	PCI/G	0.429	UI		NONE	0.169	0		1	D	Soil				
0214-95-0054	68714	Protactinium-234M	0	PCI/G	12.3	UI		NONE	0	0		1	D	Soil				
0214-95-0054	69207	Pyrene	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil	2000			
0214-95-0054	69207	Pyridine	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	68962	RDX	43200	UG/KG	37500			NONE		0		50	D	Soil				
0214-95-0054	69029	Selenium	0.596	MG/KG	0.25			NONE		0		1	D	Soil	380	1.7	MG/KG	
0214-95-0054	69029	Silver	0.701	MG/KG	0.5			NONE		0		1	D	Soil		1.61	MG/KG	
0214-95-0054	69029	Sodium	13900	MG/KG	5			NONE		0		1	D	Soil		915	MG/KG	
0214-95-0054	69029	Thallium	0.39	MG/KG	0.5	J	E	NONE		0		1	D	Soil		1	MG/KG	
0214-95-0054	68714	Thorium-230	0.639	PCI/G	0.095			NONE	0.105	0		1	D	Soil	0.18			X
0214-95-0054	68714	Thorium-231	0.316	PCI/G	0.279			NONE	0.117	0		1	D	Soil				
0214-95-0054	68714	Thorium-234	6.32	PCI/G	0.725			NONE	0.594	0		1	D	Soil				
0214-95-0054	68716	Total Uranium		MG/KG				NONE	0.123	0		1	D	Soil	230	5.45	MG/KG	
0214-95-0054	69207	Tributylphosphate	1.33	MG/KG	1.33	W	O	NONE		0		4	D	Soil				
0214-95-0054	68714	Uranium-234	0.657	PCI/G	0.201			NONE	0.172	0		1	D	Soil	13	1.94	PCI/G	
0214-95-0054	68714	Uranium-235	-0.000034	PCI/G	0.298	UI		NONE	0.121	0		1	D	Soil	10	0.084	PCI/G	
0214-95-0054	68714	Uranium-238	5.06	PCI/G	1.85	V	V	NONE	1.61	0		1	D	Soil	67	1.82	PCI/G	
0214-95-0054	69029	Vanadium	14.5	MG/KG	0.5		V	NONE		0		1	D	Soil	540	41.9	MG/KG	
0214-95-0054	69029	Zinc	61.5	MG/KG	1			NONE		0		1	D	Soil	23000	50.8	MG/KG	
0214-95-0055	69892	1,1,1-Trichloroethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	3000			
0214-95-0055	69892	1,1,2,2-Tetrachloroethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.9			
0214-95-0055	69892	1,1,2-Trichloroethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	1.4			
0214-95-0055	69892	1,1-Dichloroethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	840			
0214-95-0055	69892	1,1-Dichloroethylene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.038			
0214-95-0055	69892	1,1-Dichloropropene	2	UG/KG	2	W	Q	NONE		0		1	D	Soil				
0214-95-0055	69786	1,2,4-Trichlorobenzene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	620			
0214-95-0055	69892	1,2-cis-Dichloroethylene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	59			
0214-95-0055	69786	1,2-Dichlorobenzene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	2300			
0214-95-0055	69892	1,2-Dichlorobenzene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	2300			
0214-95-0055	69892	1,2-Dichloroethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.44			
0214-95-0055	69892	1,2-Dichloropropane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.68			
0214-95-0055	69881	1,2-Dinitrobenzene	254	UG/KG				SURROGATE		375	67.8	1	D	Soil				
0214-95-0055	69786	1,2-Diphenylhydrazine	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.56			X
0214-95-0055	69892	1,2-trans-Dichloroethylene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	170			
0214-95-0055	69786	1,3-Dichlorobenzene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	2800			
0214-95-0055	69892	1,3-Dichlorobenzene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	2800			
0214-95-0055	69892	1,3-Dichloropropane	2	UG/KG	2	W	Q	NONE		0		1	D	Soil				
0214-95-0055	69786	1,4-Dichlorobenzene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	7.4			
0214-95-0055	69892	1,4-Dichlorobenzene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	7.4			
0214-95-0055	69786	2,4,5-Trichlorophenol	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	6500			

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Norm Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0055	69786	2,4,6-Tribromophenol	0.772	MG/KG		J	I	SURROGATE		3.3	23.4	10	D	Soil				
0214-95-0055	69786	2,4,6-Tribromophenol	1.69	MG/KG				SURROGATE		3.3	51.1	10	D	Soil				
0214-95-0055	69786	2,4,6-Trichlorophenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	40			
0214-95-0055	69881	2,4,6-Trinitrotoluene	331	UG/KG	188			NONE		0		1	D	Soil				
0214-95-0055	69786	2,4-Dichlorophenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	200			
0214-95-0055	69786	2,4-Dimethylphenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	1300			
0214-95-0055	69786	2,4-Dinitrophenol	6.6	MG/KG	6.6	UJ	I	NONE		0		10	D	Soil	130			
0214-95-0055	69786	2,4-Dinitrotoluene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	130			
0214-95-0055	69786	2,6-Dinitrotoluene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	65			
0214-95-0055	69892	2-Butanone	0.01	MG/KG	0.01	UJV	QV	NONE		0		1	D	Soil	8700			
0214-95-0055	69892	2-Chloroethylvinyl ether	5	UG/KG	5	UJ	Q	NONE		0		1	D	Soil				
0214-95-0055	69786	2-Chloronaphthalene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	5200			
0214-95-0055	69786	2-Chlorophenol	2.43	MG/KG	3.3	J	E	MS		3.3	73.7	10	D	Soil				
0214-95-0055	69786	2-Chlorophenol	3.3	MG/KG	3.3	UJ	IC	NONE		0		10	D	Soil	330			
0214-95-0055	69786	2-Fluorobiphenyl	1.28	MG/KG		J	I	SURROGATE		1.65	77.6	10	D	Soil				
0214-95-0055	69786	2-Fluorobiphenyl	1.55	MG/KG				SURROGATE		1.65	93.6	10	D	Soil				
0214-95-0055	69786	2-Fluorophenol	2.12	MG/KG		J	I	SURROGATE		3.3	64.2	10	D	Soil				
0214-95-0055	69786	2-Fluorophenol	2.45	MG/KG				SURROGATE		3.3	74.2	10	D	Soil				
0214-95-0055	69892	2-Hexanone	10	UG/KG	10	UJ	Q	NONE		0		1	D	Soil				
0214-95-0055	69786	2-methyl-4,6-dinitrophenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	2-Methylnaphthalene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	2-Nitrophenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	3,3'-Dichlorobenzidine	16.5	MG/KG	16.5	UJ	I	NONE		0		10	D	Soil	0.99			X
0214-95-0055	69786	4,4'-DDD	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	1.9			X
0214-95-0055	69786	4,4'-DDE	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	1.3			X
0214-95-0055	69786	4,4'-DDT	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	1.3			X
0214-95-0055	69786	4-Bromophenyl phenyl ether	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	4-chloro-3-methyl phenol	1.7	MG/KG	3.3	J	E	MS		3.3	51.5	10	D	Soil				
0214-95-0055	69786	4-chloro-3-methyl phenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	4-Chloroaniline	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	260			
0214-95-0055	69786	4-Chlorophenyl phenyl ether	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69892	4-Methyl-2-pentanone	0.01	MG/KG	0.01	UJ	Q	NONE		0		1	D	Soil	5200			
0214-95-0055	69786	4-Nitrophenol	6.6	MG/KG	6.6	UJ	IC	NONE		0		10	D	Soil				
0214-95-0055	69786	Acenaphthene	1.71	MG/KG	3.3	J	E	MS		1.65	104	10	D	Soil				
0214-95-0055	69786	Acenaphthene	3.3	MG/KG	3.3	UJ	IC	NONE		0		10	D	Soil	360			
0214-95-0055	69786	Acenaphthylene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69892	Acetone	0.023	MG/KG	0.01	JV	QV	NONE		0		1	D	Soil	2000			
0214-95-0055	69786	Acetophenone	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	4200			
0214-95-0055	69892	Acrolein	0.02	MG/KG	0.02	UJ	Q	NONE		0		1	D	Soil	1200			
0214-95-0055	69892	Acrylonitrile	0.02	MG/KG	0.02	UJ	Q	NONE		0		1	D	Soil	0.13			
0214-95-0055	69786	Aldrin	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	0.026			X
0214-95-0055	69786	alpha-BHC	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	0.071			X
0214-95-0055	69591	Aluminum	4250000	UG/KG	4670	R	5	MS		23400		2	D	Soil				
0214-95-0055	69591	Aluminum	4160000	UG/KG	4720	R	5	MSD		23600		2	D	Soil				
0214-95-0055	69591	Aluminum	3350	MG/KG	23.4		V	DUP		0		10	D	Soil	77000	38700	MG/KG	
0214-95-0055	69591	Aluminum	3250	MG/KG	4.67		V	NONE		0		2	D	Soil	77000	38700	MG/KG	
0214-95-0055	69786	Aniline	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	19			
0214-95-0055	69786	Anthracene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	19			
0214-95-0055	69591	Antimony	4.37	MG/KG	0.935	J	C	NONE		0		2	D	Soil	31	1	MG/KG	
0214-95-0055	69591	Antimony	4.64	MG/KG	4.67	J	E	DUP		0		10	D	Soil	31	1	MG/KG	

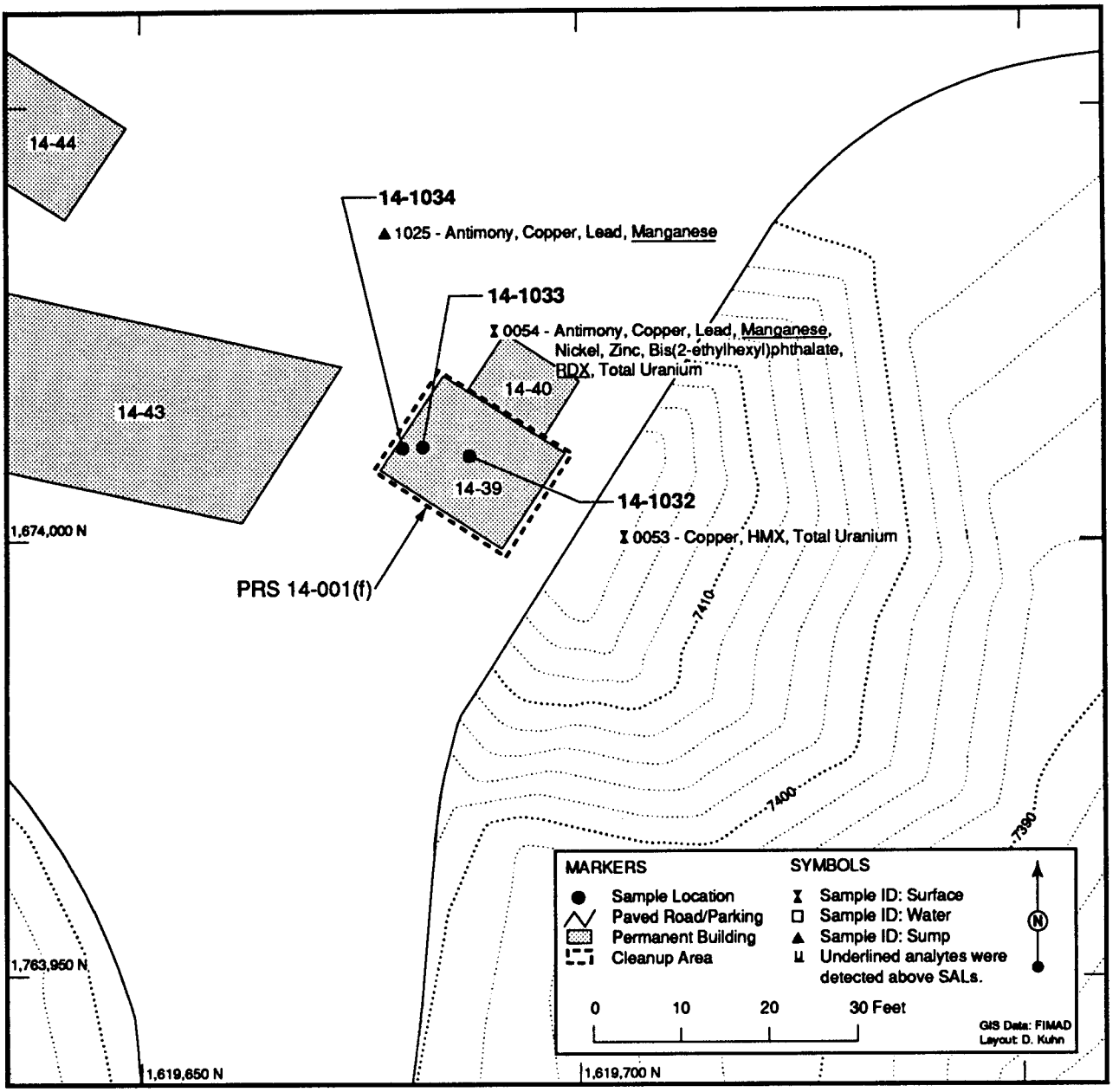
Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0055	69591	Antimony	30900	UG/KG	935			MS		23400	114	2	D	Soil				
0214-95-0055	69591	Antimony	32400	UG/KG	943			MSD		23600	119	2	D	Soil				
0214-95-0055	69591	Arsenic	1.52	MG/KG	0.935	J	IC	NONE		0		2	D	Soil		7.82	MG/KG	
0214-95-0055	69591	Arsenic	1.67	MG/KG	4.67	J	E	DUP		0		10	D	Soil		7.82	MG/KG	
0214-95-0055	69591	Arsenic	47400	UG/KG	935			MS		23400	196	2	D	Soil				
0214-95-0055	69591	Arsenic	49200	UG/KG	943			MSD		23600	202	2	D	Soil				
0214-95-0055	69591	Barium	52	MG/KG	0.935	J	VI	NONE		0		2	D	Soil	5300	315	MG/KG	
0214-95-0055	69591	Barium	51.3	MG/KG	4.67		V	DUP		0		10	D	Soil	5300	315	MG/KG	
0214-95-0055	69591	Barium	90500	UG/KG	943			MSD		23600	163	2	D	Soil				
0214-95-0055	69591	Barium	89500	UG/KG	935			MS		23400	160	2	D	Soil				
0214-95-0055	69892	Benzene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	1.4			
0214-95-0055	69786	Benzidine	16.5	MG/KG	16.5	W	I	NONE		0		10	D	Soil	0.0019			X
0214-95-0055	69786	Benzo(a)anthracene	0.33	MG/KG	0.33	W	I	NONE		0		1	D	Soil	0.61			
0214-95-0055	69786	Benzo(a)pyrene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.061			X
0214-95-0055	69786	Benzo(b)fluoranthene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.61			X
0214-95-0055	69786	Benzo(ghi)perylene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69786	Benzo(k)fluoranthene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	6.1			
0214-95-0055	69786	Benzoic Acid	6.6	MG/KG	6.6	W	I	NONE		0		10	D	Soil	100000			
0214-95-0055	69786	Benzyl Alcohol	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	20000			
0214-95-0055	69591	Beryllium	0.147	MG/KG	0.467	J	EVC	NONE		0		2	D	Soil		1.95	MG/KG	
0214-95-0055	69591	Beryllium	0.206	MG/KG	2.34	J	EV	DUP		0		10	D	Soil		1.95	MG/KG	
0214-95-0055	69591	Beryllium	50000	UG/KG	472			MSD		23600	211	2	D	Soil				
0214-95-0055	69591	Beryllium	48600	UG/KG	467			MS		23400	208	2	D	Soil				
0214-95-0055	69786	beta-BHC	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.25			X
0214-95-0055	69786	bis(2-Chloroethoxy)methane	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69786	bis(2-Chloroethyl) ether	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.074			X
0214-95-0055	69786	bis(2-Chloroisopropyl)ether	3.3	MG/KG	3.3	W	VI	NONE		0		10	D	Soil	6.3			
0214-95-0055	69892	bis(2-Chloroisopropyl)ether	0.01	MG/KG	0.01	W	Q	NONE		0		1	D	Soil	6.3			
0214-95-0055	69786	bis(2-Ethylhexyl)phthalate	7.08	MG/KG	3.3	J	I	NONE		0		10	D	Soil	32			
0214-95-0055	69892	Bromofluorobenzene	52.9	UG/KG				SURROGATE		50	106	1	D	Soil				
0214-95-0055	69892	Bromoform	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	56			
0214-95-0055	69786	Butyl benzyl phthalate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	13000			
0214-95-0055	69591	Cadmium	0.77	MG/KG	2.34	J	EV	DUP		0		10	D	Soil	38	2.7	MG/KG	
0214-95-0055	69591	Cadmium	0.691	MG/KG	0.467	J	VIC	NONE		0		2	D	Soil	38	2.7	MG/KG	
0214-95-0055	69591	Cadmium	48000	UG/KG	467			MS		23400	202	2	D	Soil				
0214-95-0055	69591	Cadmium	49600	UG/KG	472			MSD		23600	207	2	D	Soil				
0214-95-0055	69591	Calcium	4340000	UG/KG	9350	R	5	MS		117000		2	D	Soil				
0214-95-0055	69591	Calcium	3330000	UG/KG	9430	R	5	MSD		118000		2	D	Soil				
0214-95-0055	69591	Calcium	3710	MG/KG	46.7		V	DUP		0		10	D	Soil		6120	MG/KG	
0214-95-0055	69591	Calcium	3550	MG/KG	9.35		V	NONE		0		2	D	Soil		6120	MG/KG	
0214-95-0055	69892	Carbon Disulfide	0.01	MG/KG	0.01	W	Q	NONE		0		1	D	Soil	16			
0214-95-0055	69892	Carbon Tetrachloride	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.47			
0214-95-0055	69892	Chlorobenzene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	160			
0214-95-0055	69892	Chlorodibromomethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	5.3			
0214-95-0055	69892	Chloroethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	1100			
0214-95-0055	69892	Chloroform	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.53			
0214-95-0055	69591	Chromium	12.2	MG/KG	0.935	J	VIC	NONE		0		2	D	Soil	30	19.3	MG/KG	
0214-95-0055	69591	Chromium	71400	UG/KG	943			MSD		23600	251	2	D	Soil				
0214-95-0055	69591	Chromium	12.7	MG/KG	4.67		V	DUP		0		10	D	Soil	30	19.3	MG/KG	
0214-95-0055	69591	Chromium	60500	UG/KG	935			MS		23400	207	2	D	Soil				

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0055	69786	Chrysene	0.33	MG/KG	0.33	W	I	NONE		0		1	D	Soil	24			
0214-95-0055	69892	cis-1,3-Dichloropropylene	2	UG/KG	2	W	Q	NONE		0		1	D	Soil				
0214-95-0055	69591	Cobalt	8.51	MG/KG	0.935	J	VI	NONE		0		2	D	Soil	4600	19.2	MG/KG	
0214-95-0055	69591	Cobalt	56300	UG/KG	935			MS		23400	205	2	D	Soil				
0214-95-0055	69591	Cobalt	57500	UG/KG	943			MSD		23600	208	2	D	Soil				
0214-95-0055	69591	Cobalt	9.13	MG/KG	4.67		V	DUP		0		10	D	Soil	4600	19.2	MG/KG	
0214-95-0055	69591	Copper	481000	UG/KG	943	R	5	MSD		23600		2	D	Soil				
0214-95-0055	69591	Copper	353000	UG/KG	935	R	5	MS		23400		2	D	Soil				
0214-95-0055	69591	Copper	455	MG/KG	4.67			DUP		0		10	D	Soil	2800	30.7	MG/KG	
0214-95-0055	69591	Copper	449	MG/KG	0.935			NONE		0		2	D	Soil	2800	30.7	MG/KG	
0214-95-0055	69786	delta-BHC	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69786	Di-n-butyl phthalate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	6500			
0214-95-0055	69786	Di-n-octyl phthalate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	1300			
0214-95-0055	69786	Dibenzo(a,h)anthracene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.061			X
0214-95-0055	69786	Dibenzofuran	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	260			
0214-95-0055	69892	Dibromofluoromethane	45	UG/KG				SURROGATE		50	89.9	1	D	Soil				
0214-95-0055	69892	Dibromomethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	650			
0214-95-0055	69892	Dichlorobromomethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	1.4			
0214-95-0055	69892	Dichlorodifluoromethane	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	110			
0214-95-0055	69786	Dieldrin	0.33	MG/KG	0.33	W	I	NONE		0		1	D	Soil	0.028			X
0214-95-0055	69786	Diethyl phthalate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	52000			
0214-95-0055	69786	Dimethyl phthalate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	100000			
0214-95-0055	69786	Endosulfan I	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69786	Endosulfan II	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69786	Endosulfan sulfate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69786	Endrin	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	20			
0214-95-0055	69786	Endrin aldehyde	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69892	Ethylbenzene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	690			
0214-95-0055	69786	Fluoranthene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	2600			
0214-95-0055	69786	Fluorene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	300			
0214-95-0055	69786	gamma-BHC	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.25			X
0214-95-0055	69786	Heptachlor	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.099			X
0214-95-0055	69786	Heptachlor epoxide	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.049			X
0214-95-0055	69786	Hexachlorobenzene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.28			X
0214-95-0055	69786	Hexachlorobutadiene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	5.7			
0214-95-0055	69786	Hexachlorocyclopentadiene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	450			
0214-95-0055	69786	Hexachloroethane	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	32			
0214-95-0055	69881	HMX	50500	UG/KG	22500			NONE		0		30	D	Soil				
0214-95-0055	69786	Indeno(1,2,3-c,d)pyrene	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	0.61			X
0214-95-0055	69591	Iron	8810000	UG/KG	4670	R	5	MS		23400		2	D	Soil				
0214-95-0055	69591	Iron	11100000	UG/KG	4720	R	5	MSD		23600		2	D	Soil				
0214-95-0055	69591	Iron	8780	MG/KG	4.67		V	NONE		0		2	D	Soil		21300	MG/KG	
0214-95-0055	69591	Iron	9240	MG/KG	23.4		V	DUP		0		10	D	Soil		21300	MG/KG	
0214-95-0055	69786	Isophorone	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil	470			
0214-95-0055	69892	Isopropyl benzene	2	UG/KG	2	W	Q	NONE		0		1	D	Soil				
0214-95-0055	69591	Lead	190000	UG/KG	467	R	5	MS		23400		2	D	Soil				
0214-95-0055	69591	Lead	125000	UG/KG	472	R	5	MSD		23600		2	D	Soil				
0214-95-0055	69591	Lead	131	MG/KG	2.34			DUP		0		10	D	Soil	400	23.3	MG/KG	
0214-95-0055	69591	Lead	118	MG/KG	0.467			NONE		0		2	D	Soil	400	23.3	MG/KG	
0214-95-0055	69786	m,p-Cresol	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0055	69786	m-Nitroaniline	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69591	Magnesium	1210000	UG/KG	935	R	5	MS		23400		2	D	Soil				
0214-95-0055	69591	Magnesium	1240000	UG/KG	943	R	5	MSD		23600		2	D	Soil				
0214-95-0055	69591	Magnesium	1080	MG/KG	0.935		V	NONE		0		2	D	Soil		4610	MG/KG	
0214-95-0055	69591	Magnesium	1120	MG/KG	4.67		V	DUP		0		10	D	Soil		4610	MG/KG	
0214-95-0055	69591	Manganese	1420000	UG/KG	4720	R	5	MSD		4720		10	D	Soil				
0214-95-0055	69591	Manganese	1330000	UG/KG	4670	R	5	MS		4670		10	D	Soil				
0214-95-0055	69591	Manganese	749	MG/KG	4.67		V	DUP		0		10	D	Soil		714	MG/KG	
0214-95-0055	69591	Manganese	690	MG/KG	0.935		V	NONE		0		2	D	Soil		714	MG/KG	
0214-95-0055	70268	Mercury	0.0714	MG/KG	0.0328		V	NONE		0		1	D	Soil	23	0.1	MG/KG	
0214-95-0055	69892	meta- and para-Xylenes	0.004	MG/KG	0.004	UJ	Q	NONE		0		1	D	Soil	990			
0214-95-0055	69892	Methyl Bromide	0.002	MG/KG	0.002	UJ	Q	NONE		0		1	D	Soil	15			
0214-95-0055	69892	Methyl Chloride	0.002	MG/KG	0.002	UJ	Q	NONE		0		1	D	Soil	2			
0214-95-0055	69892	Methylene Chloride	0.00285	MG/KG	0.005	JV	EQV	NONE		0		1	D	Soil	11			
0214-95-0055	69786	N-Nitrosodimethylamine	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	0.0087			X
0214-95-0055	69786	N-Nitrosodiphenylamine	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	91			
0214-95-0055	69786	N-Nitrosodipropylamine	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	0.063			X
0214-95-0055	69786	Naphthalene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	800			
0214-95-0055	69591	Nickel	31.6	MG/KG	0.935	J	VI	NONE		0		2	D	Soil	1500	15.2	MG/KG	
0214-95-0055	69591	Nickel	84300	UG/KG	943			MSD		23600	223	2	D	Soil				
0214-95-0055	69591	Nickel	72200	UG/KG	935			MS		23400	174	2	D	Soil				
0214-95-0055	69591	Nickel	32.5	MG/KG	4.67		V	DUP		0		10	D	Soil	1500	15.2	MG/KG	
0214-95-0055	69786	Nitrobenzene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	33			
0214-95-0055	69786	Nitrobenzene-d5	1.12	MG/KG		J	I	SURROGATE		1.65	68	10	D	Soil				
0214-95-0055	69786	Nitrobenzene-d5	1.37	MG/KG				SURROGATE		1.65	82.8	10	D	Soil				
0214-95-0055	69786	o-Cresol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	3300			
0214-95-0055	69786	o-Nitroaniline	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	3.9			
0214-95-0055	69892	ortho-Xylene	2	UG/KG	2	UJ	Q	NONE		0		1	D	Soil				
0214-95-0055	69786	p-Nitroaniline	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	p-Terphenyl-d14	1.66	MG/KG		J	I	SURROGATE		1.65	101	10	D	Soil				
0214-95-0055	69786	p-Terphenyl-d14	1.84	MG/KG				SURROGATE		1.65	112	10	D	Soil				
0214-95-0055	69786	Pentachlorophenol	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	2.5			X
0214-95-0055	69786	Phenanthrene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69786	Phenol	2.03	MG/KG	3.3	J	E	MS		3.3	61.4	10	D	Soil				
0214-95-0055	69786	Phenol	3.3	MG/KG	3.3	UJ	IC	NONE		0		10	D	Soil	39000			
0214-95-0055	69786	Phenol-d6	2.19	MG/KG		J	I	SURROGATE		3.3	66.4	10	D	Soil				
0214-95-0055	69786	Phenol-d6	2.61	MG/KG				SURROGATE		3.3	79	10	D	Soil				
0214-95-0055	69591	Potassium	671000	UG/KG	9430	R	5	MSD		118000		2	D	Soil				
0214-95-0055	69591	Potassium	652000	UG/KG	9350	R	5	MS		117000		2	D	Soil				
0214-95-0055	69591	Potassium	442	MG/KG	9.35		V	NONE		0		2	D	Soil		3410	MG/KG	
0214-95-0055	69591	Potassium	473	MG/KG	46.7		V	DUP		0		10	D	Soil		3410	MG/KG	
0214-95-0055	69743	Protactinium-231	2.51	PCI/G	0.225			NONE	0.139	0		1	D	Soil				
0214-95-0055	69743	Protactinium-234	-0.0704	PCI/G	0.284	UI		NONE	0.0826	0		1	D	Soil				
0214-95-0055	69743	Protactinium-234M	23.9	PCI/G	7.22			NONE	3.63	0		1	D	Soil				
0214-95-0055	69786	Pyrene	1.98	MG/KG	3.3	J	E	MS		1.65	114	10	D	Soil				
0214-95-0055	69786	Pyrene	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil	2000			
0214-95-0055	69786	Pyridine	3.3	MG/KG	3.3	UJ	I	NONE		0		10	D	Soil				
0214-95-0055	69881	RDX	41200	UG/KG	22500			NONE		0		30	D	Soil				
0214-95-0055	69591	Selenium	0.589	MG/KG	0.467	J	I	NONE		0		2	D	Soil	380	1.7	MG/KG	
0214-95-0055	69591	Selenium	45400	UG/KG	467			MS		23400	192	2	D	Soil				

Sample ID	Batch	Analyte	Value	Units	MDL	Result Qual	Anal Qual	QC Type	Accuracy	Nom Conc	Recovery	Dilution	Fraction	Matrix	SAL	BKGD	BKGD Units	> SAL
0214-95-0055	69591	Selenium	46300	UG/KG	472			MSD		23600	194	2	D	Soil				
0214-95-0055	69591	Silver	0.935	MG/KG	0.935	W	I	NONE		0		2	D	Soil		1.61	MG/KG	
0214-95-0055	69591	Silver	45800	UG/KG	935			MS		23400	196	2	D	Soil				
0214-95-0055	69591	Silver	47800	UG/KG	943			MSD		23600	203	2	D	Soil				
0214-95-0055	69591	Sodium	327	MG/KG	9.35	J	VI	NONE		0		2	D	Soil		915	MG/KG	
0214-95-0055	69591	Sodium	731000	UG/KG	9350			MS		189000	213	2	D	Soil				
0214-95-0055	69591	Sodium	331	MG/KG	46.7		V	DUP		0		10	D	Soil		915	MG/KG	
0214-95-0055	69591	Sodium	755000	UG/KG	9430			MSD		191000	224	2	D	Soil				
0214-95-0055	69892	Styrene	0.01	MG/KG	0.01	W	Q	NONE		0		1	D	Soil	2200			
0214-95-0055	69892	Tetrachloroethylene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	7			
0214-95-0055	69591	Thallium	0.935	MG/KG	0.935	W	IC	NONE		0		2	D	Soil		1	MG/KG	
0214-95-0055	69591	Thallium	46300	UG/KG	935			MS		23400	199	2	D	Soil				
0214-95-0055	69591	Thallium	48000	UG/KG	943			MSD		23600	204	2	D	Soil				
0214-95-0055	69743	Thorium-230	0.614	PCI/G	0.0721			NONE	0.0535	0		1	D	Soil	0.18			X
0214-95-0055	69743	Thorium-231	0	PCI/G	0.168	U		NONE	0	0		1	D	Soil				
0214-95-0055	69743	Thorium-234	16	PCI/G	0.723		V	NONE	0.46	0		1	D	Soil				
0214-95-0055	69892	Toluene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	1900			
0214-95-0055	69892	Toluene-d8	52	UG/KG				SURROGATE		50	104	1	D	Soil				
0214-95-0055	69761	Total Uranium		MG/KG				NONE	4.69	0		1	D	Soil	230	5.45	MG/KG	
0214-95-0055	69892	trans-1,3-Dichloropropylene	2	UG/KG	2	W	Q	NONE		0		1	D	Soil				
0214-95-0055	69786	Tributylphosphate	3.3	MG/KG	3.3	W	I	NONE		0		10	D	Soil				
0214-95-0055	69892	Trichloroethylene	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	7.1			
0214-95-0055	69892	Trichlorofluoromethane	0.0139	MG/KG	0.002	J	Q	NONE		0		1	D	Soil	710			
0214-95-0055	69743	Uranium-234	0.521	PCI/G	0.151			NONE	0.0885	0		1	D	Soil	13	1.94	PCI/G	
0214-95-0055	69743	Uranium-235	0.364	PCI/G	0.226	V	V	NONE	0.107	0		1	D	Soil	10	0.084	PCI/G	
0214-95-0055	69743	Uranium-238	18	PCI/G	1.61		V	NONE	0.984	0		1	D	Soil	67	1.82	PCI/G	
0214-95-0055	69591	Vanadium	13.1	MG/KG	0.935	J	IC	NONE		0		2	D	Soil	540	41.9	MG/KG	
0214-95-0055	69591	Vanadium	59700	UG/KG	935			MS		23400	200	2	D	Soil				
0214-95-0055	69591	Vanadium	63200	UG/KG	943			MSD		23600	212	2	D	Soil				
0214-95-0055	69591	Vanadium	13.5	MG/KG	4.67			DUP		0		10	D	Soil	540	41.9	MG/KG	
0214-95-0055	69892	Vinyl Acetate	0.01	MG/KG	0.01	W	Q	NONE		0		1	D	Soil	65000			
0214-95-0055	69892	Vinyl chloride	0.002	MG/KG	0.002	W	Q	NONE		0		1	D	Soil	0.0052			
0214-95-0055	69591	Zinc	160000	UG/KG	1870	R	5	MS		23400		2	D	Soil				
0214-95-0055	69591	Zinc	166000	UG/KG	1890	R	5	MSD		23600		2	D	Soil				
0214-95-0055	69591	Zinc	214	MG/KG	1.87		V	NONE		0		2	D	Soil	23000	50.8	MG/KG	
0214-95-0055	69591	Zinc	227	MG/KG	9.35		V	DUP		0		10	D	Soil	23000	50.8	MG/KG	

Annex 7.3
Site Map


14-44
14-43
14-40
14-39
14-1034
▲ 1025 - Antimony, Copper, Lead, Manganese
14-1033
⧗ 0054 - Antimony, Copper, Lead, Manganese, Nickel, Zinc, Bis(2-ethylhexyl)phthalate, RDX, Total Uranium
14-1032
⧗ 0053 - Copper, HMX, Total Uranium
PRS 14-001(f)
1,674,000 N
1,763,950 N
1,619,650 N
1,619,700 N
7410
7400
7390
MARKERS
Sample Location
Paved Road/Parking
Permanent Building
Cleanup Area
SYMBOLS
⧗ Sample ID: Surface
□ Sample ID: Water
▲ Sample ID: Sump
Underlined analytes were detected above SALs.
N
0
10
20
30 Feet
GIS Data: FIMAD
Layout: D. Kuhn

PRS 14-001(f)

Annex 7.4
Implementation SOPs

See Environmental Restoration Standard Operating Procedures, Volumes I and II, November 17, 1993, Los Alamos National Laboratory.

Annex 7.5
Quality Assurance Plan

See Quality Program Plan and Quality Assurance Project Plan for Environmental Restoration, February 1995 Draft, Los Alamos National Laboratory.

Annex 7.6
Site-Specific Health and Safety Plan

Prior to initiation of any work, a completed Site-Specific Health and Safety Plan (SSHASP) will be approved by LANL representatives, including the Explosives Review Committee.

The SSHASP will be developed for the Environmental Restoration (ER) Project at LANL to comply with applicable federal and state occupational health and safety (HS) requirements, including those of the US Department of Energy (DOE). The DOE requires LANL to comply with the federal Occupational Safety and Health Administration (OSHA) requirements, even though operations at LANL are not subject to the jurisdiction of OSHA. The ER Project has developed a generic Health and Safety Plan, the ER Project HASP, which establishes HS information and requirements applicable to ER field operations projectwide. The SSHASP establishes site-specific HS information and requirements applicable to the scope of work described in Section 2.

ER participants are responsible for conducting work in accordance with applicable regulations. The term "ER participants" refers to anyone performing ER work, including LANL, subcontractors to LANL, and their lower-tier contractors, consultants, and agents. In some cases within this document, LANL has chosen to invoke OSHA and LANL requirements that ordinarily may not apply to ER field operations (e.g., OSHA's general industry standards in Part 1910 of Title 29 of the Code of Federal Regulations [29 CFR 1910]). These choices were made on a case-by-case basis to maintain consistency with LANL's ALARA policy and to clarify LANL's expectations with regard to interpretable requirements of the multiple agencies governing ER work. Where there is concern that implementation of work orders or HS requirements would conflict with contract terms, or that it could unreasonably compromise the safety or health of an individual or the environment, such concerns should immediately be brought to the attention of the Contract Administrator and the Field Unit HS Representative. Failure to comply with terms of HS plans may constitute cause to stop an activity or to issue a stop work order, as specified in Section 3.4.2 of the HASP, without cost or penalty to LANL.

This SSHASP shall be reviewed and approved in accordance with Section 1.2 of the HASP. When this SSHASP has been approved, revisions will be tracked using a SSHASP modification form (Appendix B of the HASP,) per Section 1.3 of the HASP. Modifications to this SSHASP may result in a change to the terms or scope of a subcontract. Completion of an SSHASP modification form is <u>not</u> the means for modifying the scope or terms of the project contract. To modify a contract, the Subcontractor shall notify the Contract Administrator and Field Unit HS Representative under the changes clause and shall not make the change until a change order has been mutually agreed upon by all parties, or unless unilateral direction is given by the Contract Administrator.

The SSHASP will be presented in a format similar to this example:

1.0 Introduction

2.0 Background Information

Table 2-1 Site Description(s)
Table 2-2 Scope of Work

3.0 Organization, Responsibilities and Authority

4.0 Hazard Analysis

4.1 Personnel by Task
4.2 Hazard Substances of Occupational Health Concern
4.3 Hazard Assessment and Administrative/Engineering Controls

5.0 Site Controls

6.0 Exposure Monitoring and Corresponding Actions

6.1 Direct-Reading Monitoring
6.2 Personal Dosimetry
6.3 Area Sampling

7.0 Personal Protective Equipment

8.0 Decontamination

9.0 Emergency/Incident Action Plan

10.0 Training

11.0 Medical Surveillance

12.0 Quality Control and Quality Assurance (QC/QA)

13.0 Recordkeeping

Appendixes

A Map(s) of Site Locations and Site Control Zones/Facilities

B Hazardous Substance — Hazard Assessment

C Chemical, Physical, and Toxicological Properties of Hazardous Chemical Substances

D Emergency Contacts and Route(s) to Medical Services

Annex 7.7
Waste Management Checklist

Voluntary Corrective Action (VCA)
Checklist and Fieldwork Authorization Form

PRS No. 14-001(f) HSWA or AOC

√ COPC(s) defined.

√ Nature and extent defined or field screening method available to guide where not defined.

√ Remedy is obvious.

√ Time for removal is less than 6 months.

√ Remedy is final.

√ Land use assumptions straightforward.

√ Treatment, Storage, Disposal Facilities are available for waste type and volume.

√ Cleanup cost is reasonable for the planned action, and meets accelerated decision logic criterion for decision to proceed with VCA.

Explain criteria not checked above. TSD capacity for offsite is unknown and will be evaluated upon analytical results (within 90-day time frame) EAT 4-23-96

Through reviewing the above criteria associated with this site, I believe that a VCA is the appropriate Accelerated Cleanup approach.

FPL _____ Date 4/17/96

FPC _____ Date April 17, 1996

The undersigned have reviewed the final plan and believe that it fully satisfies the appropriate Accelerated Cleanup approach.

FPL _____ Date 4/23/96

FPC _____ Date April 23, 1996

Through reviewing the VCA Plan, for site(s) 14-001(f) and believing that the above criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager _____ Date 4/23/96

Annex 7.8
VCA Checklist and Field Work Authorization Form

Los Alamos
NATIONAL LABORATORY
memorandum
Engineering Sciences and Applications Division
ESA-DE Design Engineering Support Group

To/MS: Memo To The File
From/MS: T. E. Gene Gould, G787
Phone/FAX: 7-0402/5-1976

Date: February 16, 1996

SUBJECT: CHARACTERIZATION STRATEGY FORM

Based on my review of available information and my professional judgment, it is not necessary to sample for tritium because it is not a potential contaminant at PRS 14-001(f).

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Waste Types: Sand, sampling waste/PPE, and decon. waste (liquid)		

Completed By: J. W. Heyser	Date: 3/25/96
FPL: T. E. Gene Gould	WMC: Bob Catherwood, ESA-EPE
Type of Activity (site investigation, EC, etc.): VCA	

Description of the Activity (e.g., drilling, surface sampling, excavation and recontouring, soil washing, etc.)
Potentially contaminated sand will be removed from the site by hand shoveling and placed in 55-gallon drums. Visible pieces of HE and DU will be separated and respectively disposed of as hazardous waste or low-level radioactive waste.

Acceptable Knowledge
Site Description, Site History, and Historical Waste Generating Processes or Activities: (Include dates for site history):

PRS 14-001(f) consists of a bullet test facility and a sump. (The bullet test facility is really a gun firing site but it is referred to as a bullet test facility.) This facility is an 8-ft diameter steel tube set on its side into which bullets were fired. A sump measuring approximately 13 by 13 ft. is below the steel tube, which is a reinforced concrete building 13.3 by 13.6 by 8 ft. tall. The bullet test facility was active from 1957 to the early 1990s. Many types of bullets, including copper-jacketed lead, plastic, steel, and depleted uranium were used in the experiments. The firing residue was usually contained in the steel tube, in the sump below the tube, or was vaporized. If the residuals were believed to be contaminated with uranium, they were placed in 55-gal. drums for disposal. Any HE-contaminated scrap or shrapnel was also placed in 55-gal. drums for pickup and treatment as HE- contaminated waste. Scrap that was neither HE- nor uranium-contaminated was sent to a sanitary landfill. Sandbags that were used for shielding disintegrated from blast pressure. When removed, they were used for erosion control at the site. The steel tube contains sand up to 5 in. deep. Additional contaminated sand is located in the sump. The total amount of contaminated sand is less that five 55-gal. drums (Source: RFI Work Plan for OU 1085, May 1994) According to site personnel, a broad range of solvents were used to take grease off metal target plates used in the bullet tests and to clean the guns. These solvents included acetone, gasoline, DCE, methylene chloride, dimethylsulfoxide, and sometimes freon. Large volumes of HOPPES No. 9, a commercial cleaner consisting of nitrated solvents, were used to clean the guns. X-ray machines were positioned near the target. Freon, mineral oil and sulfur (VI) fluoride were used as dielectric fluids in the X-ray machines, which sometimes would get punctured during an experiment allowing the fluids to leak out. One time, a mineral oil reservoir on the X-ray machine was punctured and about 40 -50 gal. of mineral oil spilled out. (Source: Wanslow, J., February 12, 1996. "Usage of Solvents at PRS 14-001(f)," ICF Kaiser memorandum to file, Los Alamos, New Mexico).

Previous Investigation Analytical Results: (Attach copy of analytical methods and results above background levels)
The material in the sump and bullet test facility was sampled on July 5 and 12, 1995 in accordance with the sampling plan in the RFI Workplan for OU 1085. See attached analytical results. Low levels of HE products were present, and depleted uranium (U-238) was present at 2.91 to 18 pCi/g, which is above the background level of 1.82 pCi/g. Lead exceeded the TC screening level in one of three samples.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: Sand		

Waste Description
Description of Waste Type, Contaminants, Volume Estimate, and Waste Packaging:

Waste Type Description: Sand and firing residue
Potential Regulatory Status: RCRA mixed waste
Volume estimate: 5 55-gal. drums
Waste Packaging: 55-gal. drums

Characterization Strategy:
Description of Strategy:

The sand will be removed from the steel tube and sump and placed in 55-gal. drums. One sample will be taken from each 55-gal. drum of sand. The followed analyses will be performed: TCLP for metals, isotopic uranium, VOCs, SVOCs, PCBs, and HE. As the sand is removed from the PRS and placed in the drums, it will be screened for gross radioactivity (alpha, beta and gamma) by hand-held instruments. Visible pieces of HE and DU will be separated and disposed of separately.

Waste Sampling*: (If sampling will be used, indicate how many grab or composite samples will be collected per container or volume of waste and whether the waste is considered homogeneous or heterogeneous. Be sure to collect enough samples to provide an average concentration of constituents.)

One composite sample will be collected from each 55-gal. drum of waste. One composite sample is considered to be representative of the waste due to the small amount of waste in each drum. Composite samples were selected because the waste is considered to be fairly homogenous. The composite sample will consist of at least 3 but no more than 10 subsamples. This number of subsamples is considered sufficient to provide an average concentration of the contaminates. The samples collected for VOC analyses will consist of grab samples instead of composite samples.

- Grab sampling is appropriate for wastes that are fairly homogeneous, such as liquid wastes.
- Composite sampling is appropriate for wastes that are heterogeneous, such as soil, sediment, and debris. A composite sample should consist of no more than 10 subsamples.
- A sample of homogeneous or heterogeneous waste collected for VOC analysis should consist of a grab sample rather than a composite sample.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: Sand		

Analytical Strategy:

Analyte Category	Analytical Method	May be Present (yes, no, unk)	Direct Sampling of Containerized Waste[1]	Acceptable Knowledge[1]	
				Existing Information[2]	Data from Proposed Site Characterization
Volatile Organic Constituents	SW 846 8240	Unk	X		
Semi-Volatile Constituents	SW 846 8270	Unk	X		
Organic Pesticides		No		X	
Organic Herbicides		No		X	
Pesticides & PCBs	SW 846 8080	Unk	X		
PCBs		No		X	
Total Metals		Yes			X
Total Cyanide		No		X	
Other Inorganic Constituents (specify)		No		X	
High Explosive Constituents	SW 846 8330	Yes	X		
Asbestos		No		X	
TPH		No		X	

1 Provide only one "X" per row to indicate how the waste will be characterized for the materials in each analyte category.
2 Existing Information includes process knowledge and previous analytical results.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: Sand		

Analyte Category	Analytical Method	May be Present (yes, no, unk)	Direct Sampling of Containerized Waste[1]	Acceptable Knowledge[1]	
				Existing Information[2]	Data from Proposed Site Characterization
TCLP Metals	SW 846 1311, 6010, 7471	Yes	X		
TCLP Organics		No		X	
TCLP Pesticides and herbicides		No		X	
Gross Alpha	Field Screen-ing	Yes	X		
Gross Beta	"	Yes	X		
Gross Gamma	"	Yes	X		
Tritium[3]		No		X	
Gamma Spectroscopy		Yes[A)]		X	
Isotopic Plutonium		No		X	
Total Plutonium		No		X	
Isotopic Uranium	HASL 300	Yes	X		
Total Uranium		Yes		X	
Strontium-90		No		X	
Americium-241		No		X	

A) U-235 is a weak gamma emitter. Isotopic uranium analysis by alpha spectroscopy is a better method.

3 If tritium is not expected to be in the waste and the waste will not be sampled for tritium, attach a tritium statement signed by the FPL stating that based on a review of the available information and professional judgment, it is not necessary to sample for tritium at this site because there is no potential for the waste to contain added tritium due to DOE operations.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Waste Types: Sand		

Preliminary RCRA Determination soil
____ Non-RCRA: (No 90-Day Storage Requirement)
_X_ RCRA: (90-Day Storage Requirement) Waste will be stored/handled in accordance with 20 NMAC Generator Requirements. Wastes will be managed as potential RCRA waste and stored in a less-than-90 day storage area. A final RCRA determination will be made after the soil sample results are evaluated.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: PPE and Sampling Equipment		

Waste Description
Description of Waste Type, Contaminants, Volume Estimate, and Waste Packaging:

Waste Type Description: PPE & sampling equipment
Potential Regulatory Status: Visibly contaminated items will be considered potentially hazardous or mixed waste (depending on the radiological field screening results of the PPE/sampling equipment). Visibly uncontaminated items will be considered non-hazardous or radioactive waste (depending on the radiological field screening results).
Volume Estimate: The volume generated will be less than one 55-gal. drum.

Waste Packaging: The PPE will be placed in sealed plastic bags that will be then placed inside the 55-gal. drum.

Characterization Strategy:
Description of Strategy:

If possible, the PPE/sampling equipment will be decontaminated prior to disposal. After decontamination the PPE/sampling equipment will be field screened for gross alpha, gross beta and gross gamma radiation in accordance with LANL-ER-SOP-10.07, "Field Monitoring for Surface and Volume Radioactivity Levels." Gross alpha radiation will be screened using an alpha probe, gross beta radiation will be screened using a beta/gamma probe, and gross gamma radiation will be screened using a Ludlum Model 2221 Scaler/Ratemeter with a Ludlum Model 44-10 2" x 2" Gamma Scintillator (SPA-3), which is equivalent to micro-R.

The waste will be inspected to determine if there is any visible contamination. If it is not visibly contaminated and does not have readings above background radioactivity, it will be placed in plastic bags, segregated by PRS, and disposed of as non-hazardous waste after the Waste Profile Form is approved.

If the PPE/sampling equipment is not decontaminated or if decontamination is not effective, the contaminated piece(s) will be segregated from the decontaminated items and placed in separate plastic bags. Each plastic bag will be segregated by PRS and labeled with the PRS number. The contaminated items will be characterized to determine their RCRA and radioactivity status based on the analytical results of soil samples associated with this PRS (see Analyte Suite section of this form). The PPE/sampling equipment will be assumed to have a similar level of contamination as the highest levels reported for a single soil sample from this PRS.

Waste Sampling*: (If sampling will be used, indicate how many grab or composite samples will be collected per container or volume of waste and whether the waste is considered homogeneous or heterogeneous. Be sure to collect enough samples to provide an average concentration of constituents.)

The PPE/sampling equipment will not be directly sampled, but will be characterized as described above.

- Grab sampling is appropriate for wastes that are fairly homogeneous, such as liquid wastes.
- Composite sampling is appropriate for wastes that are heterogeneous, such as soil, sediment, and debris. A composite sample should consist of no more than 10 subsamples.
- A sample of homogeneous or heterogeneous waste collected for VOC analysis should consist of a grab sample rather than a composite sample.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: PPE and sampling equipment		

Analytical Strategy:

Analyte Category	Analytical Method	May be Present (yes, no, unk)	Direct Sampling of Containerized Waste[4]	Acceptable Knowledge[1]	
				Existing Information[5]	Data from Proposed Site Characterization
Volatile Organic Constituents	SW 846 8240	Unk			X
Semi-Volatile Constituents	SW 846 8270	Unk			X
Organic Pesticides		No		X	
Organic Herbicides		No		X	
Pesticides & PCBs	SW 846 8080	Unk			X
PCBs		No		X	
Total Metals		Yes		X	
Total Cyanide		No		X	
Other Inorganic Constituents (specify)		No		X	
High Explosive Constituents	SW 846 8330	Yes			X
Asbestos		No		X	
TPH		No		X	

4 Provide only one "X" per row to indicate how the waste will be characterized for the materials in each analyte category.
5 Existing Information includes process knowledge and previous analytical results.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: PPE and sampling equipment		

Analyte Category	Analytical Method	May be Present (yes, no, unk)	Direct Sampling of Containerized Waste[1]	Acceptable Knowledge[1]	
				Existing Information[2]	Data from Proposed Site Characterization
TCLP Metals	SW 846 1311, 6010, 7471	Yes			X
TCLP Organics		No		X	
TCLP Pesticides and herbicides		No		X	
Gross Alpha	Field Screen-ing	Yes	X		
Gross Beta	"	Yes	X		
Gross Gamma	"	Yes	X		
Tritium[6]		No		X	
Gamma Spectroscopy		Yes[A)]		X	
Isotopic Plutonium		No		X	
Total Plutonium		No		X	
Isotopic Uranium	HASL 300	Yes			X
Total Uranium		Yes		X	
Strontium-90		No		X	
Americium-241		No		X	

A) U-235 is a weak gamma emitter. Isotopic uranium analysis by alpha spectroscopy is a better method.

[6] If tritium is not expected to be in the waste and the waste will not be sampled for tritium, attach a tritium statement signed by the FPL stating that based on a review of the available information and professional judgment, it is not necessary to sample for tritium at this site because there is no potential for the waste to contain added tritium due to DOE operations.

Preliminary RCRA Determination PPE and sampling equipment	
__X__	Non-RCRA: (No 90-Day Storage Requirement) Describe how waste will be stored/handled. Visibly uncontaminated items will be segregated and managed as non-RCRA waste.
__X__	RCRA: (90-Day Storage Requirement) Waste will be stored/handled in accordance with 20 NMAC Generator Requirements. Visibly contaminated items will be segregated and managed as potential RCRA waste and stored within a less-than-90-day storage area. A final RCRA determination will be made after the soil sample results are evaluated.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: Decontamination liquids		

Waste Description
Description of Waste Type, Contaminants, Volume Estimate, and Waste Packaging:

Waste Type Description: Decontamination liquids consist of Liquinox(R) detergent, tap water and distilled water.
Potential Regulatory Status: RCRA or mixed waste.
Volume Estimate: A total volume of less than 25 gallons.
Waste Packaging: The liquid will be placed inside a 55-gallon drum.

Characterization Strategy:
Description of Strategy:

The decontamination liquids will be characterized for RCRA based on the results of an analysis of a grab liquid sample. The decontamination liquids from this PRS will be segregated, placed in a separate drum and labeled with the PRS number.

Waste Sampling*: (If sampling will be used, indicate how many grab or composite samples will be collected per container or volume of waste and whether the waste is considered homogeneous or heterogeneous. Be sure to collect enough samples to provide an average concentration of constituents.)

One grab sample of the decontamination liquids will be analyzed for total metals, HE, and isotopic uranium. A grab sample was selected because the waste is expected to be homogeneous. One sample per waste stream is considered sufficient because of the small volume of the waste stream (less than 25 gallons).

- Grab sampling is appropriate for wastes that are fairly homogeneous, such as liquid wastes.
- Composite sampling is appropriate for wastes that are heterogeneous, such as soil, sediment, and debris. A composite sample should consist of no more than 10 subsamples.
- A sample of homogeneous or heterogeneous waste collected for VOC analysis should consist of a grab sample rather than a composite sample.

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: Decontamination liquids		

Analytical Strategy:

Analyte Category	Analytical Method	May be Present (yes, no, unk)	Direct Sampling of Containerized Waste[7]	Acceptable Knowledge[1]	
				Existing Information[8]	Data from Proposed Site Characterization
Volatile Organic Constituents	SW 846 8240	Unk	X		
Semi-Volatile Constituents	SW 846 8270	Unk	X		
Organic Pesticides		No		X	
Organic Herbicides		No		X	
Pesticides & PCBs		No		X	
PCBs	SW 846 8080	Unk	X		
Total Metals	SW 846 6010, 7471	Yes	X		
Total Cyanide		No		X	
Other Inorganic Constituents (specify)		No		X	
High Explosive Constituents	SW 846 8330	Yes	X		
Asbestos		No		X	
TPH		No		X	

7 Provide only one "X" per row to indicate how the waste will be characterized for the materials in each analyte category.
8 Existing Information includes process knowledge and previous analytical results.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Specific Waste Stream: Decontamination liquids		

Analyte Category	Analytical Method	May be Present (yes, no, unk)	Direct Sampling of Containerized Waste[1]	Acceptable Knowledge[1]	
				Existing Information[2]	Data from Proposed Site Characterization
TCLP Metals	SW 846 1311, 6010, 7471	Yes	X		
TCLP Organics		No		X	
TCLP Pesticides and herbicides		No		X	
Gross Alpha		Yes			X
Gross Beta		Yes			X
Gross Gamma		Yes			X
Tritium[9]		No		X	
Gamma Spectroscopy		Yes[A)]		X	
Isotopic Plutonium		No		X	
Total Plutonium		No		X	
Isotopic Uranium	HASL 300	Yes	X		
Total Uranium		Yes		X	
Strontium-90		No		X	
Americium-241		No		X	

A) U-235 is a weak gamma emitter. Isotopic uranium analysis by alpha spectroscopy is a better method.

[9] If tritium is not expected to be in the waste and the waste will not be sampled for tritium, attach a tritium statement signed by the FPL stating that based on a review of the available information and professional judgment, it is not necessary to sample for tritium at this site because there is no potential for the waste to contain added tritium due to DOE operations.

Preliminary RCRA Determination Decon. liquids	
____	Non-RCRA: (No 90-Day Storage Requirement) Describe how waste will be stored/handled.
__X_	RCRA: (90-Day Storage Requirement) Waste will be stored/handled in accordance with 20 NMAC Generator Requirements. Decontamination liquids will be managed as potential RCRA waste and stored within a less-than-90-day storage area. A final RCRA determination will be made after the soil sample results are evaluated.

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Waste Types: Soil, PPE and sampling equipment, and decontamination liquids		

Potential Contaminants

Potential RCRA Wastes:

Based on available information, indicate whether the waste could potentially be any of the following or be derived-from or mixed-with listed waste, as defined in 40 CFR, Part 261, or contain F-listed waste (contained-in policy for environmental media):

	Yes	No	Unknown
F-listed solvent waste (F001-F005):			X
F-listed plating waste (F006-F012):		X	
F-listed landfill leachate waste (F039):		X	
K-listed HE waste (K044-K046):		X	
K-listed ink formulation waste (K086):		X	
U-listed waste (Section 261.33):			X
P-listed waste (Section 261.33):		X	
Ignitable waste (Section 261.21):		X	
Corrosive waste (Section 261.22):		X	
Reactive waste (Section 261.23):			X (Depends on HE level)
TC waste (VOCs) (Section 261.24):		X	
TC waste (SVOCs) (Section 261.24):		X	
TC waste (Pesticides/Herbicides) (Section 261.24):		X	
TC waste (Metals) (Section 261.24):	X		

Potential Radionuclides: (A radiological specialist should complete this after reviewing site history, etc.)

A certified health physicist (John Mann) reviewed the site history to identify potential radionuclides that may be present in the wastes. Based on his review , the following radionuclides could potentially be present in the waste at concentrations sufficiently high to be detected : uranium-238.

CHARACTERIZATION STRATEGY FORM

OU Number/FU	PRS/SWMU Number	Title
1085/FU2	14-001(f)	Bullet test facility
Waste Types: Sand, PPE and sampling equipment, and decontamination liquids		

Signatures:

ER Project Representative Larry Macasson 4/3/96

Waste Management Representative Mary Jane Winch 4/1/96

Form Author James W. Hayes 4/3/96

Annex 7.9
VCA Cost Estimate

BUDGET

Plan Development	28,000
Mobilization	8,000
Cleanup	17,000
Verification Sampling	4,500
Lab Analyses/Waste Disposal	7,800
Field Screening	1,500
Demobilization	1,200
Reporting	10,000
Total Estimated Cost	78,000

REFERENCES

EPA (US Environmental Protection Agency), December 1991a. "Risk Assessment Guidance for Superfund, Volume I—Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals)," Interim, EPA/540/R-92/003, Publication 9285.7-01B, Office of Research and Development, Washington, DC. (EPA 1991, 0302).

EPA (US Environmental Protection Agency), March 25, 1991b. "Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Supplemental Guidance 'Standard Default Exposure Factors,' Interim Final," OSWER Directive 9285.6-03, Office of Emergency and Remedial Response, Toxics Integration Branch, Washington, DC. (EPA 1991, 0746)

EPA (US Environmental Protection Agency Region IX), August 1994. Region IX Preliminary Remediation Goals (PRGs), Second Half 1994. Memo from Standford J. Smucker, Ph.D., Regional Toxicologist (H-9-3), Technical Support Section to PRG Table Mailing List. (EPA 1994a).

EPA (US Environmental Protection Agency), August 1995. "List of Deficiencies, LANL Class III Permit Modification, Six Expedited Cleanups." (EPA 1995)

LANL 1993: Los Alamos National Laboratory, November 1993. "Installation Work Plan for Environmental Restoration," Revision 3, Los Alamos National Laboratory Report LA-UR-93-3987, Los Alamos, New Mexico (LANL 1993).

LANL 1994: Los Alamos National Laboratory, May 1994. "RFI Work Plan for Operable Unit 1085," Final Draft, Los Alamos National Laboratory Report LA-UR-94-1033, Los Alamos, New Mexico (LANL 1994, 1156)