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HOLLOMAN AIR FORCE BASE, NEW MEXICO

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MEMORANDUM FOR NEW MEXICO ENVIRONMENT DEPARTMENT
Attn: Mr. Bearzi
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FROM: 49 CES/CD
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Subject: Transmittal of RCRA Facility Investigation Report, Building 131 Wash Rack, Site SD-08, SWMU 82, Holloman AFB, New Mexico

1. As required, enclosed are two paper copies of the subject document.

2. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

3. If you have any questions, please contact Mr. George Fish at 505-572-5395.

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FINAL

RCRA FACILITY INVESTIGATION REPORT

BUILDING 131 WASHRACK, SITE SD-08
HOLLOMAN AFB, NEW MEXICO

Prepared for:

49 CES/CEV
Holloman Air Force Base
New Mexico

Under Contract To:

U.S. Army Corps of Engineers
Omaha, Nebraska
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Task Order No. 21

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July 2007
Revision No. 00

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FINAL

RCRA FACILITY INVESTIGATION REPORT

BUILDING 131 WASHRACK, SITE SD-08
HOLLOMAN AFB, NEW MEXICO

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D Analytical Data Packages
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G Output of Johnson and Ettinger Model
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LIST OF ACRONYMS

AAF	Army Air Field
amsl	Above mean sea level
AOC	Area of Concern
AS/SVE	Air sparging/soil-vapor extraction
ASTM	American Society for Testing and Materials
bgs	Below ground surface
Bhate	Bhate Environmental Associates, Inc.
°C	Degrees Celsius
cm	Centimeters
CME	Central Mining Equipment
CMS	Corrective Measures Study
COPCs	Chemicals of potential concern
DPT	Direct push technology
DQO	Data quality objectives
EM	Exposure model
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
°F	Degrees Fahrenheit
ft^2	Square feet
FS	Feasibility Study
g/mL	Grams per milliliter
HAFB	Holloman Air Force Base
HQ	Hazard Quotient
IDW	Investigation Derived Waste
IRP	Installation Restoration Program
J	Laboratory Qualifier (denotes a lab estimated value)
J&E	Johnson and Ettinger
LTM	Long-Term Monitoring
MCL	Maximum Contaminant Level
MDL	Method detection limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
mg/L	Milligrams per liter
mg/kg	Milligrams per kilogram
NAD	North American Datum
NFA	No Further Action
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMRBCA	New Mexico Risk-Based Corrective Action
NMWQCC	New Mexico Water Quality Control Commission
OVA	Organic Vapor Analyzer
O/WS	Oil water separator

LIST OF ACRONYMS (CONTINUED)

PA	Preliminary Assessment
PCBs	Polychlorinated Biphenyls
POL	Petroleum, Oil, and Lubricant
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
%R	Percent recovery
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RCRA	Resource Conservation Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROEs	Routes of exposure
SCS	Soil Conservation Service
SI	Site Inspection
SOP	Standard Operating Procedure
SQCSR	Sample and Quality Control Summary Report
SSLs	Soil Screening Levels
SVOC	Semi-volatile organic compound
SWMU	Solid Waste Management Unit
TCLP	Toxicity characteristic leaching procedure
TDS	Total dissolved solids
TPH	Total petroleum hydrocarbon
TRPH	Total recoverable petroleum hydrocarbons
TVA	Toxic Vapor Analyzer
UCL	Upper confidence limit
USACE	United States Army Corps of Engineers
UTL	Upper tolerance limit
VOC	Volatile organic compound
WRCC	Western Regional Climate Center
WSMR	White Sands Missile Range

EXECUTIVE SUMMARY

Environmental Restoration Program (ERP) Site SD-08 (Solid Waste Management Unit [SWMU] 82 – Building 131 Washrack) is located in the southeastern corner of the refuse collection yard near Building 131. The refuse collection yard is located southwest of the Petroleum, Oil, and Lubricant (POL) Storage Area and east of the Main Base area.

Refuse collection trucks (trash trucks) were routinely washed with soap and water at the washrack. Base records indicate that pesticides were routinely sprayed inside the trucks during the 1970s for fly control; however, this practice ceased in 1982. SD-08 has been the subject of a series of environmental investigations and a remedial action related to pesticide contamination detected in the soil and groundwater. These have resulted in the installation of several groundwater monitoring wells and the collection and analysis of groundwater and soil samples.

This report presents a site-specific risk assessment conducted at the site to determine whether the residual soil and groundwater concentrations result in an unacceptable risk. The risk assessment consisted of the following steps:

- Review of site history and compilation of relevant data;
- Development of an exposure model (EM) for the identification of the complete routes of exposure (ROEs);
- Comparison of maximum and average soil and groundwater concentrations with New Mexico Environmental Department (NMED) soil and groundwater screening levels, respectively;
- Evaluation of total dissolved solids (TDS) data; and
- Application of the Johnson and Ettinger (J&E) model to estimate soil and groundwater target levels protective of indoor inhalation.

The results of the above tasks are summarized below:

1. The primary ROEs which have been quantitatively evaluated based on the site-specific receptors include:
   a. Future Resident
      i. Dermal contact with surficial soil;
      ii. Ingestion of surficial soil;
      iii. Outdoor inhalation from surficial soil;
      iv. Indoor inhalation from subsurface soil; and
      v. Indoor inhalation from groundwater.
   b. Future Construction Worker
      i. Dermal contact with soil to depth of construction;
      ii. Ingestion of soil to depth of construction;
      iii. Outdoor inhalation of vapors or particulates from soil to depth of construction;
      iv. Dermal contact with groundwater; and
      v. Inhalation of vapors from groundwater.

2. The maximum detected concentration for one contaminant of potential concern (COPC) (total recoverable petroleum hydrocarbons [TRPH]) in soil and one COPC (1,2-dichloroethane) in groundwater exceeded their respective screening levels. For these two, the average concentration was compared with screening levels. The average concentration of these two COPCs did not exceed the screening levels.

3. The average concentration of TDS at and around the site exceeds 10,000 milligrams per liter (mg/L). Thus, groundwater was not considered potable.

The evaluation discussed above indicated that the residual soil and groundwater concentrations are protective of future receptors at the site. These concentrations are anticipated to reduce in time due to natural attenuation processes which are expected to further reduce the risk. Based on the results of the soil and groundwater samples collected at the site, and the conclusions of the risk assessment, no further action is recommended for the site.

1 INTRODUCTION

Bhate Environmental Associates, Inc. (Bhate) has been retained by the U.S. Army Corps of Engineers (USACE), under contract DACA45-03-D0023, Task Order No. 21, to conduct a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Environmental Restoration Protection (ERP) Site SD-08 (Solid Waste Management Unit [SWMU] 82 – Building 131 Washrack) at Holloman Air Force Base (HAFB), New Mexico. The primary objective of this data collection effort was to fill in the data gaps to complete a comprehensive site-specific risk evaluation. RFI data collection activities were initiated in October 2006 and were completed in January 2007 to support closure of the site based on guidance from the New Mexico Environment Department (NMED). This RFI Report for SD-08 has been prepared in accordance with the State of New Mexico requirements and following the guidelines set forth under HAFB's RCRA Permit, Appendix 4-B, RFI Outline (NMED, February 2004).

1.1 Objectives

The objectives of the RFI at Site SD-08 were to review available information and to collect soil and groundwater data to fulfill the data gap requirements identified by the NMED. The objectives of the SD-08 RFI were outlined in correspondence dated February 9, 2005, and July 27, 2005, from the NMED to HAFB (Attachment A) and are summarized as follows:

1. Locate the two washrack drainage pits and advance two soil borings to characterize soil conditions under each drainage pit.

2. Install one upgradient monitoring well and one monitoring well downgradient of the drainage pits.

3. Analyze soil and groundwater samples for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), RCRA metals, organochlorine pesticides, and total dissolved solids (TDS) (water only).

4. Analyze two additional subsurface soil samples for geotechnical parameters (dry bulk density, specific gravity, moisture content, and fractional organic carbon content). The geotechnical data will be used to evaluate the indoor inhalation pathway for the risk based evaluation presented in Section 8.

The primary objective of this RFI is to determine whether the current residual soil and groundwater concentrations of pesticides, VOCs, SVOCs, RCRA metals, and TDS results in an unacceptable risk for current and future land use based on conservative assumptions. During this process, required data were collected to support the closure of the site based on guidance from the NMED. The ultimate objective is to achieve No Further Action (NFA) approval for site closure from NMED.

1.2 Purpose of the RCRA Facility Investigation

The primary purpose of the RFI is to comply with the requirements of RCRA Permit number NM6572124422 by completing the sampling program identified in the Scope of Work and applying site-specific data quality objectives identified in the HAFB Quality Assurance Project Plan (QAPP) (Bhate, 2003). The data quality objectives include:

- Generate data to characterize contaminant sources; and
- Determine to the extent possible the nature and extent of contamination in the site media.

1.3 Scope of Work

The following summary of the work performed under this RFI is detailed in the *Additional Investigation Requirements Work Plan, ERP Site SD-08, Holloman AFB, New Mexico* (Bhate, August 2005) and included:

- Review existing information about the site;
- Conduct a site and environs reconnaissance;
- Identify potential receptors; and
- Evaluate all information collected.

For this site, a focused RFI was completed to meet the project objectives. To meet the RFI objectives, the following activities were performed by Bhate from late October 2006 through January 2007:

Oct. 2006 Four soil borings (SB-08-21 through SB-08-24) were drilled; 6 subsurface soil samples were collected for chemical analysis, and two undisturbed soil samples were collected for analyzing geotechnical parameters (from the upgradient borehole SB-08-24). Soil borings SB-08-23 and SB-08-24 were converted into the downgradient and upgradient wells (MW-08-07 and MW-08-08). Groundwater samples were collected from monitoring wells MW-08-01, MW-08-05, MW-08-07, MW-08-08, and S10-MW1. The samples were analyzed for the following:

- VOCs using Environmental Protection Agency (EPA) Method 8260B (soil and groundwater);
- SVOCs using EPA Method 8270C (soil and groundwater);
- RCRA Metals using EPA Methods 6010B and 7471A/7470A (soil and groundwater); and
- Organochlorine Pesticides using EPA Method 8081A (soil and groundwater).

Geotechnical samples were analyzed for the following parameters:

- Moisture Content using American Society for Testing and Materials (ASTM) Method 2216;
- Dry Bulk Density using ASTM Method D2937;
- Specific Gravity using ASTM Method D854; and
- Fractional Organic Carbon Content using ASTM Method D2974.

Jan. 2007 Monitoring wells MW-08-01, MW-08-05, MW-08-07, MW-08-08, and S10-MW1 were sampled and analyzed for TDS by EPA Method 160.1

1.4 Document Organization

This RFI Report has been modeled after the format suggested in the RFI Report Requirements found in the HAFB RCRA Permit NM6572124422 (Appendix 4-B of the Permit). The document contains the following 10 sections:

- Section 1 – Introduction
- Section 2 – Site Background
- Section 3 – Environmental Setting
- Section 4 – Source Characterization
- Section 5 – Field Activities
- Section 6 – Laboratory Analysis and Data Validation Summary
- Section 7 – Nature and Extent of Contamination
- Section 8 – Risk Based Evaluation
- Section 9 – Conclusions and Recommendations
- Section 10 – References

The tables and figures referenced throughout this RFI Report are included following the text (after Section 10). Attachment A contains correspondence from the NMED regarding this site.

This report also includes the following eight appendices:

- Appendix A – Historical Data from Previous Investigations
- Appendix B – Soil Boring Logs and Monitoring Well Construction Diagrams
- Appendix C – Field Sampling Documentation

- Appendix D – Analytical Data Packages
- Appendix E – Data Validation Reports
- Appendix F – Geotechnical Analytical Data Packages
- Appendix G – Output of Johnson and Ettinger Model
- Appendix H – Equations for Target Levels for Construction Worker

2 SITE BACKGROUND

2.1 HAFB Site Description

HAFB is located in southeastern New Mexico in Otero County, New Mexico, approximately 100 miles north-northeast of El Paso, Texas and six miles west of Alamogordo, New Mexico (Figure 2-1). HAFB was first established in 1942 as Alamogordo Army Air Field (AAF). From 1942 through 1945, Alamogordo AAF served as the training grounds for over 20 different flight groups, flying primarily B-17s, B-24s, and B-29s. After World War II, most operations had ceased at the base. In 1947, Air Material Command announced the air field would be its primary site for the testing and development of un-manned aircraft, guided missiles, and other research programs. On January 13, 1948, the Alamogordo installation was renamed Holloman Air Force Base, in honor of the late Col. George V. Holloman; a pioneer in guided missile research. In 1968, the 49th Tactical Fighter Wing arrived at HAFB and has remained since. Today, a portion of HAFB also serves as the training center for the German Air Force's Tactical Training Center.

2.2 Building 131 Washrack (Site SD-08) Site Description

Site SD-08 is located in the southeastern corner of the refuse collection yard near Building 131. The refuse collection yard is located southwest of the Petroleum, Oil, and Lubricant (POL) Storage Area and east of the Main Base area. The original yard occupied approximately one-half acre and was surrounded by a chain-link fence. The yard was unpaved with sparse vegetation only along the fence. The topography of the site is generally flat. Figure 2-2 shows the location of SD-08 at HAFB.

The washrack was installed in 1942 and consisted of a rectangular concrete pad (approximately 1,000 square feet [ft^2]). Refuse collection trucks (trash trucks) were routinely washed with soap and water at the washrack. Base records indicate that pesticides were routinely sprayed inside the trucks during the 1970s for fly control; however, this practice ceased in 1982. Drains located at the north end of the washrack connected to a sewer line that carried wastewater to an oil/water separator (O/WS) near the northwest corner of the washrack. According to site personnel, it was common for the sewer line to clog, causing the sump and O/WS to overflow onto the surrounding soil. The washrack contained cracks in the concrete and was replaced in 1992 with a new washrack in the same location. The O/WS was abandoned in place. In 1995 the entire yard area was covered with an asphalt cap as part of the remedial measures performed at the site.

2.3 Historical Data Review

This section presents an overview of the previous investigations conducted at site SD-08. Since 1991, site SD-08 has been the subject of a series of environmental investigations and a remedial action related to pesticide contamination detected in the soil and groundwater. This section provides a historical overview and chronology of the previous investigations conducted at site SD-08 from 1991 through 2006.

The Site was identified as a potential contaminant source during the Installation Restoration Program (IRP) Phase I Records Search (CH2M Hill, 1983). As a result, the site was investigated under Phase I of the IRP as Site SD-08 in 1991. The ensuing *Remedial Investigation Report, Investigation, Study and Recommendation for 29 Waste Sites* (Radian, 1992a) indicated that pesticide contamination was present in the shallow soil and in the groundwater at site SD-08. The associated risk evaluation concluded that pesticide concentrations in soil pose an occupational health risk. To mitigate this risk, the site entered into the Feasibility Study/Corrective Measures Study (FS/CMS) process, which established health based cleanup criteria, identified the area exceeding these cleanup criteria, and recommended the installation of an impermeable cap. The Phase II RFI (Foster Wheeler/Radian, 1995) delineated the extent of organochlorine pesticide contamination in groundwater. In 1996, SD-08 was recommended for long-term groundwater monitoring to ensure that the remedial action was preventing further degradation of groundwater.

A summary of the analytical results for these previous investigations, based on reports reviewed is presented in the following subsections. Selected boring and sampling locations for these previous investigations are shown on Figure 2-3.

2.3.1 SD-08 Remedial Investigation

A Remedial Investigation at SD-08 was performed by Radian Corporation in July 1991 to evaluate soil and groundwater conditions in potential contaminant source areas. Six soil borings (SB-08-01 to SB-08-06) were advanced to depths ranging from approximately 20 to 24 feet below existing grade. Two monitoring wells (MW-08-01 and MW-08-02) were installed in assumed downgradient locations with respect to the washrack. A groundwater sample was also collected from one existing well (MW-08-03/S10-MW7) associated with Site LF-10. The following samples were collected and submitted for laboratory analysis:

- Twelve soil samples were collected from the six soil borings and analyzed for VOCs, total recoverable petroleum hydrocarbons, organochlorine pesticides and polychlorinated biphenyls (PCBs), organophosphorus pesticides, and total metals;
- Three groundwater water samples from the three monitoring wells (MW-08-01 to MW-08-03) were analyzed for VOCs, organochlorine pesticides and PCBs, organophosphorus pesticides, anions, total metals, and TDS;
- Two soil samples collected from monitoring well borings were analyzed for geotechnical parameters; and
- In-situ permeability (slug) tests were performed on the two new monitoring wells and one existing monitoring well.

A complete discussion of the soil and groundwater analytical results is included in Section 4.5.4 of the *Remedial Investigation Report, Investigation, Study and Recommendation for 29 Waste Sites* (Radian, 1992a). Surface soil samples from the soil borings located around the washrack contained the highest concentrations of organochlorine pesticides. The prevalent organochlorine

pesticides identified in the soil samples were 4,4-DDD (maximum 4,000 micrograms per kilogram [µg/kg]), 4,4-DDE (maximum 5,600 µg/kg), 4,4-DDT (maximum 9,300 µg/kg), and chlordane (maximum 4,000 µg/kg). All maximum concentrations were detected in one soil sample collected from 0 to 2 feet below grade at soil boring SB-08-02 located southeast of the washrack. All concentrations of organochlorine pesticides were below the current NMED soil screening levels (SSLs) (NMED, 2006) and significantly attenuated with depth. No PCBs or organophosphorus pesticides were detected in any soil samples. With the exception of methylene chloride, all VOCs were detected at estimated concentrations below the detection limit. Methylene chloride, a common laboratory contaminant was present in several samples but was also detected in the laboratory blanks making these detections suspect. Total recoverable petroleum hydrocarbons were identified in several surface soil samples (0 to 2 feet) and declined sharply with depth. In addition, all metal concentrations detected in the soil samples were also below their respective NMED SSLs (NMED, 2006). The soil boring logs for this investigation are included in Appendix B-1 of this RFI Report.

Groundwater samples were collected from the three monitoring wells. Several VOCs were detected in the groundwater samples, however most were below the method detection limit. The highest concentrations of VOCs were detected in upgradient well MW-08-01 where the concentrations of benzene (10,000 micrograms per liter [µg/L]) and ethylbenzene (1,600 µg/L) both exceeded their respective New Mexico Water Quality Control Commission (NMWQCC) standards (New Mexico Administrative Code [NMAC] 20.6.2.3103). Additionally, 1,2-dichloroethane was detected in MW-08-03 (8 µg/L) below the NMWQCC standard. Several organochlorine pesticides including aldrin, chlordane, dieldrin, heptachlor, heptachlor epoxide, and gamma-BHC, were all detected below the EPA Maximum Contaminant Levels (MCLs) in monitoring wells MW-08-01 and MW-08-03. Organophosphorus pesticides were not detected in any of the monitoring wells. All metals were detected below their respective NMWQCC standards. TDS in groundwater ranged from 2,800 mg/L (MW-08-02) to 15,000 mg/L (MW-08-03). The groundwater and soil analytical data collected during this investigation are included in Appendix A-1 of this RFI report.

The associated risk assessment screen indicated an unacceptable risk for Site SD-08 and recommended that that the site should proceed beyond the remedial investigation/feasibility study (RI/FS) stages into the FS/CMS process. The SD-08 RI report also concluded that VOC concentrations detected in upgradient monitoring well MW-08-03 were not due to SD-08 site activities (Radian, 1992a). It was also determined that the potential sources for volatile organic constituents detected in the groundwater at SD-08 include several former underground storage tanks used to store waste fuels, located across the street 100 feet west of the site, south of Building 80 (later designated as ERP Site Area of Concern [AOC]-RR).

As a result of the findings presented in the SD-08 Remedial Investigation Report (Radian, 1992a) a Preliminary Assessment (PA)/Site Inspection (SI) was conducted at AOC-RR in 1994 and 1995 (EBASCO/Groundwater Technology, 1995). The objective of the SI at AOC-RR was to assess the potential for soil and groundwater contamination associated with the two areas (Building 80 and the former underground storage tank area) that comprise AOC-RR that are located approximately 100 feet upgradient of SD-08. No Total Petroleum Hydrocarbons (TPH)

or VOCs were detected in the 12 soil samples collected from the six soil borings. However, elevated VOCs were detected 11 of the 16 groundwater samples collected at AOC-RR. Benzene, ethylbenzene, toluene, xylenes, and 1,2-dichloroethane were detected above the NMWQCC standards at maximum values of 3,300 µg/L, 1,000 µg/L, 1,600 µg/L, 3,200 µg/L, and 440 µg/L, respectively, indicative of a release at the site. Additionally the downgradient groundwater sampling location GP-16 (located adjacent to MW-08-01) contained concentrations of benzene (40 µg/L) and 1,2-dichloroethane (290 µg/L) above the NMWQCC standards. No Further Action was recommended for AOC-RR and the site is currently listed in Table B of the Holloman AFB Permit. The groundwater and soil analytical data collected during this investigation are included in Appendix A-2 of this RFI report.

2.3.2 SD-08 Feasibility Study

After reviewing the RI Report (Radian, 1992a) the EPA Region VI issued a letter to HAFB to install additional soil borings to define the extent of soil contamination and to install additional monitoring wells to define the extent of pesticide contamination in the groundwater. To mitigate the risk associated with pesticides in soil at SD-08, the site entered into the FS/CMS process. The following additional investigations were conducted at Site SD-08:

- The Corrective Measures Study in 1992 (Radian, 1992b);
- The Feasibility Study in 1993 (Radian, 1993a); and
- The RCRA Facility Investigation in 1994 (Foster Wheeler/Radian, 1995).

The Corrective Measures Study Plan (Radian, 1992b) established health-based remedial action objectives (RAOs) for soil contamination at the site. To determine the vertical and lateral extent of pesticide and metals soil contamination exceeding the cleanup criteria, a Pre-Design Investigation (PDI) was conducted in 1993. During this investigation, 14 soil borings (SB-08-07 through SB-08-20) were installed to the groundwater table.

A total of 26 soil samples were collected from the 14 soil borings. All samples were analyzed for cadmium, lead, mercury, and organochlorine pesticides. In addition, toxicity characteristic leaching procedure (TCLP) pesticides and metals analysis were performed on samples from SB-08-10, SB-08-13, and SB-08-17. The complete analytical results from the soil samples collected during the PDI were presented in the Feasibility Study Report (Radian, 1993a). All pesticide and metal concentrations detected in these soil samples were below their respective NMED SSLs (NMED, 2006). In addition, the concentrations for the TCLP pesticides and metals analyses did not exceed the regulatory levels for the toxicity characteristic.

However, concentrations of cadmium, lead, mercury, 4,4-DDD, 4,4-DDE, 4,4-DDT, and chlordane detected in soil samples collected from SB-08-01, -02, -03, -04. -06, -10, -12, and -13 exceeded the cleanup levels established in the CMS Plan (Radian, 1992b). The depth of contaminated soils was estimated to extend to 2 to 4 feet below ground surface. Results from the PDI also indicated that the area exceeding the established cleanup criteria was approximately 20,800 square feet and encompassed the southern half of the refuse yard. A total volume of

1,610 cubic yards was estimated to exceed the cleanup criteria. Based on the detailed evaluation presented in the FS Report (Radian, 1993a) source containment (installation of an impermeable asphalt cap over the affected soils) was selected as the most effective remedial alternative. The soil analytical data collected during this investigation are included in Appendix A-3 of this RFI report.

2.3.3 SD-08 RCRA Facility Investigation Report

To determine the extent of organochlorine pesticides in the groundwater the Phase II RFI was conducted by Foster Wheeler/Radian in 1994. During this investigation groundwater samples were collected from seven direct push technology boreholes (DPT) (HP-08-01 to HP-08-07) located downgradient of SD-08. The pesticide results for the DPT groundwater samples were used to locate three new monitoring wells (MW-08-04, MW-08-05, and MW-08-06). Groundwater samples were collected from the three new wells and two existing wells (MW-08-03 and HSTE-10-MW-01). The five groundwater samples collected from the monitoring wells were analyzed for organochlorine pesticides using EPA Method SW8080.

The highest concentrations of pesticides were detected in the closest downgradient wells (MW-08-03 and MW-08-05). Heptachlor epoxide was detected in monitoring wells MW-08-03 (0.16 μg/L) and MW-08-05 (0.033 μg/L). These concentrations were both below the EPA MCL for heptachlor epoxide (0.2 μg/L). The monitoring wells located further downgradient (MW-08-04, MW-08-06, and HST-10-MW-01) contained only estimated delta-BHC concentrations below the detection limits. The RFI report (Foster Wheeler/Radian, 1995) recommended a voluntary corrective action (impermeable cap) for SWMU 82 (SD-08) and long-term groundwater monitoring to ensure that the remedial action prevented the degradation of groundwater. The results from this investigation are presented in Appendix A-4 of this RFI Report.

2.3.4 SD-08 Decision Document

The SD-08 Feasibility Study recommended an asphalt cap as the preferred remedial action for the site. The SD-08 Decision Document (Radian, 1995) presented a summary of background, risks, and the selected remedy (asphalt cap). The components of the selected remedy included the following:

- Placement of an impermeable cap over the affected soils;
- Installation of a chain-link fence to restrict access to the site;
- Annual inspection and maintenance of the cap; and
- Long-term groundwater monitoring to ensure the effectiveness of the remedial action.

In January 1997, an asphalt cap covering an area with pesticide soil concentrations exceeding the cleanup criteria (approximately 41,000 ft^2) was installed in the area of the former washrack. A map of the selected remedy and a cross-section of the asphalt cover at SD-08 are shown in Appendix A-5 of this RFI Report.

2.3.5 SD-08 Long-Term Groundwater Monitoring

The Long-Term Monitoring Program (LTM) was designed as a 10-year program with monitoring performed once every two years. The SD-08 Decision Document (Radian, 1995) established the requirement for LTM as a condition of site closure. The objective of the LTM at SD-08 was to ensure that degradation to groundwater quality was not occurring or continuing. The LTM sampling events at SD-08 were conducted in August 1995, September 1997, September 1999, September 2001, April 2003, and December 2005. During the 2005 LTM Program, groundwater samples were collected from the following four monitoring wells: MW-08-03, MW-08-04, MW-08-05, and MW-08-06 (MW-08-01 was dry). Groundwater samples were analyzed for VOCs, metals (arsenic, barium, iron, manganese, and selenium), and TDS. The groundwater sample collected from MW-08-06 was only analyzed for TDS.

The 2005 LTM Program concluded the sixth sampling event for SD-08. Manganese in wells MW-08-04 and MW-08-05 was the only contaminant detected above the NMWQCC Standards at SD-08 during the 2005 event. 1,2-Dichloroethane was detected in groundwater at MW-08-01 (73 µg/L) during the 2003 LTM event at a concentration greater than the NMWQCC Standard. This result was not confirmed during the 2005 event as the well was dry. The results from the six LTM sampling events are presented in Appendix A-6 of this RFI report.

3 ENVIRONMENTAL SETTING

HAFB is situated in south central New Mexico, in the northwest central part of Otero County (Figure 2-1). HAFB has a population of 6,000 and occupies about 50,000 acres in the northeast quarter of Section 1, Township 17 South, Range 8 East. The White Sands Missile Range (WSMR) testing facilities occupy additional land extending northward from the Base. Private and public owned lands border the remainder of HAFB. The major highway servicing HAFB is Highway 70, which runs southwest from the town of Alamogordo and separates HAFB from publicly owned lands to the south. Alamogordo with a population of approximately 35,000 is located approximately 7 miles east of the base.

3.1 Physiography and Topography

HAFB is located within the Sacramento Mountains Physiographic Province on the western edge of the Sacramento Mountains. HAFB is approximately 59,600 acres in area, and is located at a mean elevation of 4,093 feet above mean sea level (amsl). The region is characterized by high tablelands with rolling summit plains; cuesta-formed mountains dipping eastward and of west-facing escarpments with the wide bracketed basin forming the basin and range complex. The Base is located in the Tularosa Sub-basin which is part of the Central Closed Basins. The bordering mountains rise abruptly to altitudes of 7,000 to 12,000 feet amsl. The San Andres Mountains bound the basin to the west (about 30 miles) with the Sacramento Mountains approximately 10 miles to the east. At its widest, the basin is about 60 miles east to west and stretches approximately 150 miles north to south.

3.2 Surface Water and Hydrology

The Tularosa Basin contains all of the surface flow in its boundaries. The nearest inflow of surface waters to the Base comes from the Lost River, located in the north-central region of the Base. The upper reaches of the Three Rivers and the Sacramento River are perennial in the basin. HAFB is dissected by several southwest trending arroyos that control the surface drainage. Hay Draw arroyo is located in the far north. Malone and Rita's Draw, which drain into the Lost River, and Dillard Draw arroyos are located along the eastern perimeter of the Base. Approximately 10,000 years ago, indications are of a much wetter climate. The present day Lake Otero encompassed a much larger area, possibly upwards of several hundred square miles. Its remains are the Alkali Flat and Lake Lucero. Lake Lucero is a temporary feature of merely a few inches in depth during the rainy season.

Ancient lakes and streams deposited water bearing deposits over the older bedrock basement material. Fractures, cracks, and fissures in the Permian and Pennsylvanian bedrock yield small quantities of relatively good quality water in the deeper peripheral. Potable water is only found from a handful of wells near the edges of the basin with more saline water towards the center. Two of the principal sources of potable water are a long narrow north-south trending area east of Tularosa and Alamogordo and in the far southwestern part of the basin. Alamogordo's water, as well as the Base's, is supplied from Lake Bonito (which is in the Pecos River Basin).

3.3 Regional Geology

The sedimentary rocks which make up the adjacent mountain ranges are between 500 and 250 million years old (WSMR, 2003). During the period when the area was submerged under the shallow intra-continental sea, the layers of limestone, shale, gypsum, and sandstone were deposited. In time, these layers were pushed upward through various tectonic forces forming a large bulge on the surface. Approximately 10 million years ago the center began to subside resulting in a vertical drop of thousands of feet leaving the edges still standing (the present day Sacramento and San Andres mountain ranges). In the millions of years following, rainfall, snowmelt, and wind eroded the mountain sediments depositing them in the valley (i.e. Tularosa Basin). Water carrying eroded limestone, dolomite, gravel, and other matter continue to flow into the basin.

As the Tularosa Basin is a bolson, which is a basin with no surface drainage outlet, sediments carried by surface water into a closed basin are bolson deposits. The overlying alluvium generally consists of unconsolidated gravels, sands, and clays. Soils in the basin are derived from the adjacent ranges as erosional deposits of limestone, dolomite, and gypsum. A fining sequence from the ranges towards the basin's center characterizes the area with the near surface soils as alluvial, eolian, and lacustrine deposits. The alluvial fan deposits are laterally discontinuous units of interbedded sand, silt, and clay while the eolian deposits consist primarily of gypsum sands. The eolian and alluvial deposits are usually indistinguishable due to the reworking of the alluvial sediment by eolian processes. The playa, or lacustrine deposits, consist of clay containing gypsum and are contiguous with the alluvial fan and eolian deposits throughout HAFB. There has been the identification of stiff caliche layers, varying in thickness, at different areas of the Base. At the site, soils are predominantly silty sands and interbedded clays.

3.4 SD-08 Site Geology

The description of the SD-08 site geology is based upon the 9 soil borings completed between August 1991 (Remedial Investigation) and November 1994 (Phase II RFI) and the four completed during this investigation in October 2006. Drilling logs from the two RFI (Foster Wheeler/Radian, 1995) wells indicate that the stratigraphy at SD-08 consists primarily of silty and clayey sands. A layer of poorly-graded sand interbedded with thin layers of caliche and clayey sands was encountered in the boring closest to the washrack. Drilling logs from the RI (Radian, 1992a) also indicated the presence of a sand layer within the silty sand unit. This sand unit was not encountered for the two wells further downgradient of the washrack. No confining layers were found beneath the sand in any of the site borings. The stratigraphy is typical of the alluvial, eolian, and playa deposits of the Tularosa Basin. The soil boring logs and well construction diagrams for these three investigations are included in Appendices B-1, B-2, and B-3 of this RFI report.

3.5 Regional Hydrogeology

The predominance of the groundwater occurs as an unconfined aquifer in the unconsolidated deposits of the central basin, with the primary source of recharge as rainfall percolation and minor amounts of stream run-off along the western edge of the Sacramento Mountains. Surface water/rainfall migrates downward into the alluvial sediments at the edge of the shallow aquifer near the ranges, and flows downgradient through progressively finer-grained sediments towards the central basin. Because the Tularosa Basin is a closed system, water that enters the area only leaves either through evaporation or percolation. This elevated amount of percolation results in a fairly high water table. Beneath HAFB, groundwater ranges from 5 to 50 feet. Flow for the Base is generally towards the southwest with localized influences from the variations in the topography of the Base. Near the arroyos, groundwater flows directly toward the surface drainage feature.

Groundwater quality in the Tularosa Basin is of potable quality at the recharge areas in close proximity to the Sacramento Mountains and becomes increasingly mineralized toward the central portion of the basin and discharge areas (Radian, 1993b). The majority (over 70 %) of the Sites/SWMUs located across HAFB, have groundwater monitoring wells containing water with an average TDS concentration greater than 10,000 mg/L. This TDS data supports the hypothesis that TDS concentrations below 10,000 mg/L at HAFB are caused by dilution of natural groundwater from leaking water lines and surface irrigation from the domestic water supply. TDS concentrations greater than 10,000 mg/L exceed the NMWQCC limit as potable water and thus, the groundwater beneath HAFB has been designated as unfit for human consumption. Likewise, EPA guidelines have identified the groundwater as a Class IIIB water source, characterized by TDS concentrations exceeding 10,000 mg/L.

In addition, there are no potable water wells on HAFB. Potable water for the base and the city of Alamogordo is derived from the nearby Sacramento Mountains located east of Alamogordo. The only production water well, used for livestock irrigation, is located approximately 11 miles southwest of SD-08.

3.6 SD-08 Site Hydrogeology

At SD-08, there are eight wells screened between 6.1 and 19.7 feet below ground surface (bgs). Historical depth to water ranges from approximately 8 to 10 feet bgs at the site. In January 2007, depth to groundwater measurements at SD-08 ranged from 7.55 to 10.98 feet below top of casing, and groundwater elevations ranged from 4079.94 to 4078.71. Tables 3-1 and 3-2 present the groundwater elevation data and monitoring well construction details respectively. A potentiometric surface map was prepared using the data collected in January 2007 (Figure 3-1). Groundwater flows east-southeast toward Dillard Draw and the hydraulic gradient is approximately 2.69×10^{-3}. Based on in-situ permeability (slug) tests performed on three wells (MW-08-01, -02, and -03) during the 1991 RI, the site average hydraulic conductivity was calculated to be 3.48×10^{-3} feet/minute. Based on data from these tests the groundwater velocity at SD-08 was calculated to be 19 feet/year (Radian, 1992a). The SD-08 well construction diagrams are included in Appendix B-1 and B-2 of this RFI Report.

3.7 Climate

As a whole, New Mexico has a mild, arid to semi-arid continental climate characterized by light precipitation totals, abundant sunshine, relatively low humidity, and relatively large annual and diurnal temperature range (Western Regional Climate Center [WRCC], 2003). The climate of the Central Closed Basins varies with elevation. The Base is found in the low areas and is characterized by warm temperatures and dry air. Daytime temperatures often exceed 100 degrees Fahrenheit (°F) in the summer months and are in the middle 50s in the winter. A preponderance of clear skies and relatively low humidity permits rapid night time cooling resulting in average diurnal temperature ranges of 25 to 35°F. Potential evapotranspiration, at 67 inches per year, significantly exceeds annual precipitation, usually less than 10 inches. The very low rainfall amounts resulting in the arid conditions, which with the topographically induced wind patterns combining with the sparse vegetation, tend to cause localized "dust devils". The annual rainfall for Alamogordo is 12 inches per year[1]. Much of the precipitation falls during the mid-summer monsoonal period (July and August) as brief, yet frequent, intense thunderstorms culminating to 30 – 40% of the annual total rainfall.

3.8 Water Use

HAFB is located in the Tularosa Sub-basin. Potable water is available from municipal wells along the margins of the basin with more saline water towards the center. The principle sources of potable water are located in a long narrow north-south trending area east of Alamogordo and Tularosa and in the far southern part of the basin. HAFB is supplied potable water from Lake Bonito, which is in the Pecos River Basin.

Within the boundaries of SD-08, storm water run-off is controlled by the minimal topographic relief as per the existing grade and landscaping. A HAFB water line runs along the upgradient western perimeter of the site boundary.

[1] http://countrystudies.us/united-states/weather/new-mexico/

4 SOURCE CHARACTERIZATION

Based on the previous investigations presented in Section 2.3, soil and groundwater analytical data have been collected at the Building 131 Washrack (Site SD-08) since 1991. Source characterization for Site SD-08 has been thoroughly described in the following three historical documents:

- *Remedial Investigation (RI) Report, Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, New Mexico, Volume I,* Radian, June 1992.
- *Draft Final Feasibility Study, Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, New Mexico,* Radian, December 1993.
- *Draft Final Phase II RCRA Facility Investigation Report, Table 1 Solid Waste Management Units, Holloman Air Force Base, New Mexico,* Foster Wheeler/Radian, June 1995.

The purpose of this RFI was to collect additional soil and groundwater data to characterize the current site conditions for a comprehensive site-specific risk assessment. Data from this investigation will determine whether the residual soil and groundwater concentrations of organochlorine pesticides, VOCs (attributed to Site AOC-RR), SVOCs, RCRA metals, and TDS result in an unacceptable risk. Soil and groundwater data (historical and current) used for the risk evaluation is presented in Section 8.1.3 of this report.

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5 FIELD ACTIVITIES

The objective of the investigation activities at the site was to fill data gaps identified by NMED (Attachment A presents NMED correspondence dated February 9, 2005, July 27, 2005, and the SD-08 Work Plan Notice of Approval letter dated December 29, 2005). To meet the investigation objectives the following activities were performed:

- Installed an upgradient monitoring well (MW-08-08);
- Advanced two soil borings to characterize soil conditions under the drainage pits (SB-08-21 and SB-08-22);
- Installed one monitoring well downgradient of the drainage pits (MW-08-07);
- Collected groundwater samples from the two new (MW-08-07 and MW-08-08) and three existing (MW-08-01, MW-08-05, and S10-MW01) monitoring wells;
- Soil and groundwater samples were analyzed for organochlorine pesticides, VOCs, SVOCs, RCRA metals, and TDS (groundwater only); and
- Additionally, two geotechnical samples were collected from the upgradient monitoring well borehole. The geotechnical data (dry bulk density, specific gravity, fractional organic carbon content, and moisture content) will be utilized for the SD-08 risk based evaluation.

Prior to sampling activities, an Air Force Form, AF FM 332, and dig permit were submitted to the proper offices. All sampling activities were completed following the *Additional Investigation Requirements Work Plan ERP Site SD-08, Holloman Air Force Base, New Mexico* (Bhate, 2005) and standard industry practices. A copy of the field logbook for this investigation is included in Appendix C.

5.1 Soil Borings and Geotechnical Sampling

5.1.1 Soil Boring Sampling

In October 2006, four shallow soil borings (SB-08-21 through SB-08-24) were advanced at Site SD-08 (Figure 2-3) in accordance with HAFB Standard Operating Procedures (SOPs) provided in the *Basewide Quality Assurance Project Plan* (Bhate, 2003). The soil borings were advanced using a Central Mining Equipment (CME) 75 hollow stem auger drill rig, a five foot stainless steel core barrel, and associated tooling. These soil borings were sampled continuously to a depth of approximately 7.5 feet bgs. Two soil samples for chemical analysis were collected from each drainage pit borehole (SB-08-21 and SB-08-22) and the downgradient monitoring well borehole (SB-08-23) at various intervals from 2 to 8 feet bgs. In addition, two soil samples were collected for geotechnical analysis from the upgradient monitoring well borehole (SB-08-24).

Soils were visually classified in the field by a geologist according to the Unified Soil Classification System. Soils were screened with a Foxboro Toxic Vapor Analyzer (TVA) 1000 Organic Vapor Analyzer (OVA), with soil-headspace screening techniques to aid in selecting samples for laboratory analysis. Two soil samples were collected from three borings for laboratory chemical analysis. One sample was collected from just above the capillary fringe, and a second soil sample from a location above the capillary fringe where the OVA reading was the highest. Soil samples were placed in the appropriate containers, packed on ice at 4 degrees Celsius (°C), and delivered under chain-of-custody to Accutest Laboratories in Orlando, Florida. The soil boring logs for this investigation are included in Appendix B-3 of this RFI Report.

5.1.2 Geotechnical Soil Sampling

In October 2006 two geotechnical samples were collected. Soil boring SB-08-24 was drilled upgradient of the former Building 131 washrack (Figure 2-3) to provide geotechnical data for non-impacted soils and the installation of an upgradient well. Two undisturbed soil samples were collected from boring SB-08-24 above the water table where the lithology is representative of the site, and analyzed for soil geotechnical properties (dry bulk density, specific gravity, moisture content, and fractional organic carbon content). Geotechnical samples were collected in Shelby tubes and shipped to Accutest Laboratories in Orlando, Florida for analysis.

5.2 Groundwater Sampling

In November and December 2006, groundwater samples were collected from the two new wells (MW-08-07 and MW-08-08) along with three existing wells (MW-08-01, MW-08-05, and S10-MW01) illustrated in Figure 2-3. Prior to sampling, groundwater levels were collected for each monitoring well and then it was purged. Monitoring well purging and sampling was completed with low flow techniques utilizing a peristaltic pump and disposable polyethylene tubing placed at mid-screen. Each of the wells was pumped at an average rate of less than 1 liter per minute. Appendix C includes the Monitoring Well Sample Collection Forms.

Groundwater samples were placed in the appropriate containers, packed on ice at 4 °C, and delivered under chain-of-custody to Accutest Laboratories located in Orlando, Florida. In addition, groundwater samples were collected from the five monitoring wells (MW-08-01, MW-08-05, MW-08-07, MW-08-08, and S10-MW01) in December 2006 and January 2007. These samples were analyzed for TDS by Accutest Laboratories in Orlando, Florida.

5.3 Surveying

Sample locations were surveyed in accordance with methods described in the QAPP (Bhate, 2003). The locations, referenced with horizontal coordinates, and top of casing elevations were obtained for each monitoring well. All elevations are referenced to the North American Datum (NAD) 1983. All horizontal coordinates are referenced to the State Plane Coordinate System, New Mexico Central. Elevations and coordinates are surveyed to the closest 0.001 foot. Appendix C includes the survey data.

5.4 Equipment Decontamination

All reusable equipment associated with soil sampling was decontaminated in accordance with the HAFB SOPs provided in the *Basewide QAPP* (Bhate, 2003).

5.5 Waste Handling

All investigation derived waste (IDW) produced during the investigation process was handled in accordance with the HAFB SOPs provided in the *Basewide QAPP* (Bhate, 2003).

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6 LABORATORY ANALYSIS AND DATA VALIDATION SUMMARY

The analysis of soil and groundwater samples collected during this investigation followed the proposed methodologies presented in the *Additional Investigation Requirements Work Plan ERP Site SD-08* (Bhate, 2005). All analytical procedures followed the EPA SW-846 protocol with the groundwater and soil samples being analyzed as follows:

- VOCs by EPA Method 8260B
- SVOCs by EPA Method 8270C
- RCRA Metals by EPA Method 6010B/7470A/7471A (or 200.7/245.1)
- Pesticides by EPA Method 8081A

The groundwater was also analyzed for:

- TDS by EPA Method 160.1

All of the laboratory data generated as part of this project was validated by the project chemist. Field Quality Assurance (QA)/Quality Control (QC) samples, including blind QA samples, equipment rinsates, trip blanks, matrix spikes, matrix spike duplicates, and QC splits, were collected to document field and laboratory QA/QC. The analytical data is provided in Appendix D. The Data Validation Reports are provided in Appendix E. Accutest Laboratories in Orlando, Florida performed the analysis of all samples collected from late October 2006 through January 2007.

Overall, only minor QC issues were identified during the data validation of the laboratory results and the laboratory took all necessary corrective actions. All of the data were determined to be usable with only minor qualifications. Information regarding the precision, accuracy, representativeness, and completeness is provided in the validation reports (Appendix E) with the following sections providing a synopsis of each analyte group.

6.1 Volatile Organic Compounds

The confirmation column for groundwater sample SD-08-MW08-01 was run outside of the established holding time. The positive volatile results for 1,2-dichloroethane which was reported from the second analysis in this sample was qualified as estimated "J". Allyl chloride in groundwater sample SD08-MW08-07 had a percent recovery (%R) less than the lower acceptance limit and was qualified non-detected estimate "UJ" in the sample. The VOC analyses for groundwater samples SD08-MW08-01, SD08-MW08-05, S10-MW01, SD08-MW08-08, and SD08-MW08-08D yielded a matrix spike/matrix spike duplicate (MS/MSD) recovery for 2-chloroethyl vinyl ether less than the associated QC limits. This may indicate a matrix effect and a low bias to the data. All results for this compound were considered estimated non-detects "UJ". The MS/MSD recovery for 1,2,4-trimethylbenzene resulted in a value less than the associated QC limits in soil samples SD08-SB22-2 and SD08-SB22-7. A matrix effect and a low bias to the data may be present. All results for this compound were considered estimated non-detects "UJ". For groundwater sample SD08-MW08-05 the MS/MSD recovery for methyl ethyl

ketone exceeded the associated QC limit. This may indicate a matrix effect and high bias to the data. The result, which was between the MDL and RL, was qualified estimated "J" by the laboratory and was also qualified as estimated "J" by the validating chemist.

6.2 Semi-volatile Organic Compounds

During the second SVOC analyses of the groundwater samples SD08-MW08-01, SD-08-MW08-05, and S10-MW01, the established holding times for extraction were exceeded by eight days. All results for these samples were considered estimated non-detects, "UJ". A matrix effect and a low bias to the data may be involved for MS/MSD recoveries less than the associated QC limits in soil samples SD08-SB21-2, SD08-SB21-2a, SD08-SB21-6, SD08-SB23-4, and SD08-SB23-07 and groundwater samples SD08-MW08-08 and SD08-MW08-08D for benzidine and in soil samples SD08-SB22-2 and SD08-SB22-7 for 2-chloronaphthalene, 4-bromophenyl phenyl ether, and pentachlorophenol. All results for these compounds were considered estimated non-detects, "UJ".

6.3 Organochlorine Pesticides

The pesticide analyses for groundwater samples SD08-MW08-01, SD08-MW08-05, S10-MW01, SD08-MW08-08, and SD08-MW08-08D yielded MS/MSD recoveries for 4,4-DDE, 4,4-DDT, and methoxychlor less than the associated QC limits. This may indicate a matrix effect and a low bias to the data. All results for these compounds were considered estimated non-detects "UJ".

6.4 RCRA Metals

During the analyses of soil samples SD-08-SB22-2 and SD-08-SB22-7, for RCRA metals, the data for barium was flagged due to MS/MSD variances. The QA validation indicated the MS/MSD recoveries exceeded the associated QC limits which may indicate a high bias to the data and possible matrix effect. The positive results reported for barium were considered estimated "J". Also, lead was present in the equipment blank and the subsequent positive results associated with the field samples less than five times the blank concentration were flagged non-detects "U".

Groundwater samples SD08-MW08-01, SD08-MW08-05, and S10-MW01 resulted in mercury exceeding the QC limits for the MS/MSD relative percent difference. This may indicate a matrix effect and the positive results for this compound in the associated field samples were considered estimated "J".

6.5 Total Dissolved Solids

There were no QA deficiencies reported for the total dissolved solids in any of the samples analyzed expect for sample SD08-MW08-07 which was analyzed outside the requisite holding time by seven days and the result was qualified as estimated "J".

7 NATURE AND EXTENT OF CONTAMINATION

This section presents the soil, geotechnical, and groundwater analytical results from the RFI field activities completed at Site SD-08 by Bhate from October to December 2006, including the TDS groundwater sampling events conducted in December 2006 and January 2007. This section also presents the current nature and extent of contamination found in the soil and groundwater during this investigation. The soil and groundwater sampling locations from this investigation are shown on Figures 7-1 and 7-2 respectively.

The objectives of the RFI at Site SD-08 were to: 1) determine if any soil, and/or groundwater contamination exist at the site, 2) delineate the current horizontal and vertical extent of the contamination, 3) collect two geotechnical samples to evaluate the indoor inhalation pathway for the risk based evaluation, and 4) collect the proper data meeting the data quality objectives to support closure of the site. The primary objective of this data collection effort was to fill in the data gaps to complete a site-specific risk evaluation and to collect the proper data meeting the data quality objectives (DQOs) ultimately in support for the closure of the site based on guidance from the NMED. The ultimate objective is to achieve approval for site closure from NMED. Soil, geotechnical, and groundwater analytical results are summarized in Tables 7-1, 7-2, 7-3, and 7-4, respectively. Duplicate samples were collected in borings SB21 at 2 feet bgs and in MW-08 for groundwater.

7.1 Soil Analytical Results

The six soil samples collected from soil borings SB-08-21 through SB-08-23 were analyzed for VOCs, SVOCs, organochlorine pesticides, and RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). The soil analytical results are summarized in Table 7-1. Figure 7-1 shows the soil analytical data collected during this investigation that was detected above the reporting limit.

VOCs were not detected in any samples above the method detection limit (MDL). The pesticide 4,4-DDE was detected in one sample (SD-08-SB22-2) at an estimated concentration of 1.1 J µg/kg and the SVOC diethyl phthalate was detected in three samples with concentrations ranging from 129 J to 930 µg/kg. The detections of 4,4-DDE and diethyl phthalate were each below their respective NMED soil screening levels (17.2 mg/kg and 48,900 mg/kg) (NMED, 2006). All other pesticides and SVOCs were not detected above the method detection limits. Six RCRA metals were detected above the method detection limit. The maximum concentrations of arsenic (3.1 milligrams per kilogram [mg/kg]), barium (114 J mg/kg), cadmium (0.13 J mg/kg), lead (2.9 J mg/kg) and mercury (0.021 J mg/kg) were all below their respective NMED soil screening levels (NMED, 2006).

7.2 Soil Geotechnical Analytical Results

The two geotechnical samples collected from SB-08-SB24 were analyzed for bulk density, fractional organic carbon, moisture content, and specific gravity. The geotechnical analytical results are presented in Table 7-2. The geotechnical borehole location is also shown on Figure 7-

1. Because these samples were collected in the unsaturated silty sand zone above the water table, the results for each geotechnical parameter were averaged for their use in the site-specific estimation of risk. Lab results from geotechnical analysis are included in Appendix F.

7.3 Groundwater Analytical Results

The five groundwater samples collected from MW-08-01, MW-08-05, MW-08-07, MW-08-08 and S10-MW1 were analyzed for VOCs, SVOCs, organochlorine pesticides, RCRA metals, and TDS. The analytical results are presented in Tables 7-3 and 7-4 and the monitoring well locations are shown on Figure 7-2.

A variety of VOCs (acetone, benzene, chloroform, tert-butylbenzene, 1,2-dichloroethane, 1,2-dichloropropane, o-dichlorobenzene, methyl ethyl ketone, and 1,1,2-trichloroethane) were detected above the method detection limit in the five monitoring wells. The highest concentrations of VOCs were detected in MW-08-01 which is the closest downgradient well to Site AOC-RR. MW-08-01 contained the maximum concentrations of benzene (0.57 J µg/L), tert-butylbenzene (0.57 J µg/L), 1,2-dichloroethane (134 µg/L), 1,2-dichloropropane (10.3 µg/L), o-dichlorobenzene (0.52 J µg/L) and 1,1,2-trichloroethane (3.9 µg/L). The most widely distributed VOC contaminant, 1,2-dichloroethane, was detected in 3 of the 5 samples with concentrations ranging from 3 µg/L (S10-MW1) to 134 µg/L (MW-08-01). Monitoring wells MW-08-01 and MW-08-07 had concentrations of 1,2-dichloroethane above the NMWQCC standard (10 µg/L). Additionally, the concentration of 1,2-dichloropropane (10.3 µg/L) detected in MW-08-01 was above the EPA MCL. All other VOCs were detected at concentrations below the NMWQCC standards (NMAC 20.6.2) and the EPA MCLs.

Two SVOCs (diethyl phthalate and bis(2-Ethylhexyl)phthalate) were detected in monitoring wells MW-08-07 and MW-08-05 with concentrations of 11.1 µg/L and 3.6 J µg/L, respectively. No other SVOCs were detected during this sampling event. Organochlorine pesticides alpha and gamma-chlordane were detected in monitoring well MW-08-07 with estimated concentrations of 0.016 J µg/L and 0.03 J µg/L, respectively. These concentrations are well below the EPA MCL for chlordane (2 µg/L). All other pesticides were not detected above the MDL in any of the other groundwater samples.

Seven RCRA metals were detected above the MDL. The maximum concentrations of arsenic (23.4 µg/L), barium (48.3 J µg/L), cadmium (1.6 J µg/L), chromium (3.8 J µg/L), lead (2.9 J µg/L), mercury (0.22 J µg/L), and silver (1.1 J µg/L) were all below their respective NMWQCC screening levels (NMAC 20.6.2). However, the single concentration of arsenic (23.4 µg/L) detected in monitoring well MW-08-01 is above the EPA MCL for arsenic (10 µg/L). Although this detection exceeds the EPA MCL it is below the Basewide upper tolerance limit (UTL) for dissolved arsenic (35.4 µg/L) (Radian, 1993b).

The five groundwater samples collected from monitoring wells MW-08-01, MW-08-05, MW-08-07, MW-08-08, and S10-MW1 in December 2006 and January 2007 were analyzed for TDS. TDS concentrations ranged from 2,420 mg/L (MW-08-05) to 17,200 mg/L (MW-08-08) and exceeded the NMWQCC standard of 1,000 mg/L at each well.

Groundwater analytical results for this investigation are summarized in Table 7-3. TDS is summarized in Table 7-4. Figure 7-2 presents the VOC groundwater analytical data that was detected above the MDL and the dissolved metals that were detected above the reporting limit.

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8 RISK BASED EVALUATION

This section presents the methodology used for risk evaluation at the SD-08 site. The methodology consists of the following:

1. Compilation of soil and groundwater data (refer to Section 8.1);
2. Identification of COPCs (refer to Section 8.2);
3. Development of exposure model (EM) (refer to Section 8.3);
4. Identification of target levels for soil and groundwater (refer to Section 8.4);
5. Calculation of representative concentration (refer to Section 8.5);
6. Comparison of representative concentrations with target levels (refer to Section 8.6); and
7. Conclusions and recommendations (refer to Section 9).

Each of the above steps is presented below.

8.1 Compilation of Soil and Groundwater Data

8.1.1 Soil Data

As discussed in Section 2.3, the following data is available for SD-08:

Year	Borings	No. of Borings	No. of Samples
1991	SB-08-01 to SB-08-06	6	12
1993	SB-08-07 to SB-08-20	14	24
October 2006	SD-08-21 to SD-08-23	3	6*
October 2006	SD-08-24	1	2**

Note:
* One duplicate sample was collected from soil boring SD-08-21 at 2 ft bgs.
** Samples were collected and analyzed for geotechnical parameters. The results for geotechnical parameters are presented in Table 7-2.

The above data has been complied in Table 8-1(a). Note Table 8-1(a) lists (i) the analytes that had at least one detected value, and (ii) the analytical detection limit if known for non-detected chemicals. Table 8-1(b) presents a statistical summary of the data and shows the following:

- Number of samples analyzed for each chemical;
- Number of samples with detected concentrations for each chemical;
- Number of samples in which chemicals were not detected above applicable detection limits;
- The range of detected concentrations; and
- The range of detection limits.

8.1.2 Groundwater Data

As discussed in Section 2.3, the following groundwater data is available for SD-08:

Monitoring Well	No. of Sampling Event	Sampling Period
MW-08-01	7	1991 – Nov. 2006
MW-08-02	1	1991
MW-08-03	8	1991 – Dec. 2005
MW-08-04	7	1994 – Dec. 2005
MW-08-05	6	1994 – Nov. 2006
MW-08-06	1	Dec. 2005*
MW-08-07	1	Dec. 2006
MW-08-08	1	Nov. 2006**
HSTE-10/S10-MW1	2	1994 – Nov. 2006

Note:
* Sample collected from MW-08-06 was analyzed only for TDS.
** One duplicate sample was collected from MW-08-08.

The above data have been complied in Table 8-1(c). Note Table 8-1(c) lists (i) the analytes that had at least one detected value, and (ii) the analytical detection limit if known for non-detected chemicals. Table 8-1(d) presents a statistical summary of the data and shows the following:

- Number of samples analyzed for each chemical;
- Number of samples with detected concentrations for each chemical;
- Number of samples with non-detected concentrations for each chemical;
- The range of detected concentrations; and
- The range of detection limits.

Table 8-1(e) provides the construction details for all the wells. No information was available for MW-8-03. Note all the wells are screened across the water table.

8.1.3 Data Used for Risk Evaluation

The soil and groundwater data compiled above was evaluated for use in this risk assessment. Specifically, the following methodology was used:

- Conservatively, all the available soil data collected since 1991 were used. This is a conservative assumption since no known releases have occurred at the site since this data was collected and the residual chemical concentrations would be expected to decrease due to natural attenuation processes. Additionally data from only three soil borings were collected in October of 2006, and this data would not be sufficient to estimate risk;

- The groundwater data prior to 2003 were not considered since (i) sufficient current data is available and (ii) the data prior to 2003 is not representative of the current groundwater conditions;

- Conservatively, data with laboratory qualifiers "B" (analyte detected in laboratory blank analysis), and "J" (analyte detected below the detection and estimated) were considered as detected concentrations; and

- The duplicate samples were considered as follows:

    - If both samples contained a detectable concentration, the average of the two were taken and considered as detected;

    - If one of the samples contained a detectable concentration and the other was non-detect, the non-detect was replaced with ½ the detection limit and the average of the two were taken and considered as detected; and

    - If both samples had concentrations below the detection limit, the average of the two detection limits were taken and the sample was considered as non-detect.

Based on the above considerations, Tables 8-2(a) and 8-2(c) present the soil and groundwater data used for the risk assessment, respectively. Further, Tables 8-2(b) and 8-2(d) present summary statistics of data used for risk assessment. These tables are similar to tables 8-1(b) and 8-1(d) that present for

- Total number of samples analyzed for each chemical;
- Total number of samples with detected concentrations for each chemical;
- Total number of samples with non-detected concentrations for each chemical;
- The range of detected concentrations; and
- The range of detection limits.

8.2 Identification of Chemicals of Potential Concern

The chemicals that were detected in at least one soil or groundwater sample were identified from Tables 8-2(a) and 8-2(c), and are presented in Table 8-3. These chemicals were considered as COPCs and are included in this risk assessment. Iron was not considered a COPC since this chemical is most likely naturally occurring. In all, 29 chemicals in soil and 21 chemicals in groundwater are included.

8.3 Development of Exposure Model

This section presents the EM for Site SD-08. The EM identifies the potential receptors and the exposure pathways under current and anticipated future conditions.

8.3.1 Receptors

Currently, the site is capped with restricted access and there is no building on it. Therefore, there are no receptors for current land use. An occasional maintenance worker may visit the site and potentially be exposed to the residual chemicals on-site. However, their exposure frequency and

exposure duration would be very small and hence the exposure and risk are negligible compared with that of the future receptors evaluated in this risk assessment.

Although HAFB has no plans to develop this property, conservatively it was assumed that the future land use will be residential. Therefore, the resident (including child and adult) is considered a receptor of concern under future conditions. Additionally, in the future, construction activities may occur, hence potential future construction worker is also considered a receptor of concern.

8.3.2 Exposure Pathways

Tables 8-4(a) and 8-4(b) present the EMs for the potential future resident and construction worker, respectively. Of the various complete exposure pathways, outdoor inhalation from subsurface soil and groundwater for resident will not be quantified since indoor inhalation is being considered and is the more critical pathway. The pathways that will be quantitatively evaluated are presented below in Section 8.3.3.

As per the NMED regulations (NMAC 20.6.2.3103), groundwater zones where TDS concentrations exceed 10,000 mg/L are considered non-potable and are not required to meet the NMWQCC standards. Groundwater zones where the TDS concentrations are less than 10,000 mg/L are required to meet the NMWQCC standards.

TDS data for SD-08 has been collected for six of the eight groundwater monitoring wells at the site. Additional TDS data is available for five monitoring wells located within 1,000 feet of SD-08. These five wells (S10-MW1, -MW3, -MW4, -MW5, and -MW6) are associated with adjacent site LF-10 (Figure 8-1). Monitoring wells S10-MW1 and S10-MW5 are actually located downgradient of Site SD-08. Since TDS are naturally occurring, it is reasonable to include these wells in the analysis to determine the TDS characteristics of groundwater around SD-08.

The data, along with the minimum, maximum, 95% Upper Confidence Limit (UCL), and average TDS concentration are listed in Table 8-5. It should be noted that a high anomaly (59,200 mg/L in 2002) observed in MW-08-05 was not included in the calculations as it is likely an outlier. The TDS data from monitoring well MW-08-05 has consistently been lower than the concentrations observed in other monitoring wells. The TDS concentrations detected in MW-08-05 are not considered representative of naturally occurring shallow groundwater at and in the vicinity of SD-08. The abnormal TDS levels detected in MW-08-05 are likely attributable to localized anthropogenic impacts such as leakage from a water supply pipeline that runs on the western edge and north (upgradient) of the site.

Table 8-5 shows that the 95% UCL for TDS concentrations at the site are above 10,000 mg/L. Based on this, the shallow groundwater is not considered potable and the ingestion of groundwater exposure pathway is considered incomplete.

8.3.3 Summary of Complete Exposure Pathways

The complete exposure pathways that will be quantitatively evaluated are summarized below (refer to Tables 8-4(a) and 8-4(b)).

8.3.3.1 Future Resident

- Dermal contact with surficial soil;
- Ingestion of surficial soil;
- Outdoor inhalation of vapors or particulates from surficial soil;
- Indoor inhalation of vapors from subsurface soil; and
- Indoor inhalation of vapors from groundwater.

Of the above complete exposure pathways, risk due to dermal contact with, ingestion of, and outdoor inhalation of vapors or particulates from surficial soil were collectively evaluated and is referred to as the combined pathway from surficial soil.

8.3.3.2 Future Construction Worker

- Dermal contact with soil to depth of construction;
- Ingestion of soil to depth of construction;
- Outdoor inhalation of vapors or particulates from soil to depth of construction;
- Dermal contact with groundwater; and
- Outdoor inhalation of vapors from groundwater.

For the exposure pathways from soil, dermal contact with, ingestion of, and outdoor inhalation of vapors or particulates from soil were evaluated as the combined pathways from soil. For the exposure pathways from groundwater, dermal contact with and inhalation of vapors from groundwater were evaluated as the combined pathways from groundwater.

8.4 Identification of Target Levels

This section discusses the target levels for the complete exposure pathways identified in Section 8.3.

8.4.1 Target Levels for Soil

For the following exposure pathway and receptor combinations, target levels for soil were obtained from the following sources:

- **Combined pathways from surficial soil for resident**: The NMED SSLs for residential land use were used (NMED, 2006). For TRPH, the SSL is as per the NMED TPH Screening Guidelines (NMED, 2005).

- **Indoor inhalation of vapors from subsurface soil for resident:** The Johnson & Ettinger (J&E) model (EPA, 2004a) was used to develop the target levels for indoor inhalation of vapors from subsurface soil for resident. The use of the J&E model was

necessary because the NMED SSLs document does not evaluate the indoor inhalation pathway. The details of development of target levels for this pathway and receptor combination are discussed in Section 8.4.3 of this RFI report.

- **Combined pathways from soil for construction worker:** The NMED SSLs for construction worker were used (NMED, 2006). For TRPH, the SSL is as per the NMED TPH Screening Guidelines (NMED, 2005).

Four chemicals (endosulfan II, endosulfan sulfate, heptachlor epoxide, and delta-BHC) did not have NMED SSLs. For these chemicals, the SSLs were calculated using the methodology included in the NMED soil screening guidance (NMED, 2006) for both the resident and construction worker.

Table 8-6(a) presents the target levels for soil for the above exposure pathway and receptor combinations.

8.4.2 Target Levels for Groundwater

For the following exposure pathway and receptor combinations, target levels for groundwater were obtained from the following sources:

- **Indoor inhalation of vapors from groundwater for resident:** The J&E model was used to develop the target levels for indoor inhalation of vapors from groundwater for resident. The details of development of target levels for this pathway and receptor combination are discussed in Section 8.4.3 of this RFI report.

- **Dermal contact with groundwater for construction worker:** As per the Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual, Part E: Supplemental Guidance for Dermal Risk Assessment (EPA, 2004b). The details of development of target levels are discussed in Section 8.5.1.4 of this RFI report.

- **Outdoor inhalation of vapors from groundwater for construction worker:** As per the RAGS Volume I Part A (EPA, 1989) and the Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites (American Society for Testing and Materials [ASTM], 1995), the target levels for this pathway and receptor combination were developed. The details of development of target levels are discussed in Section 8.4.4 of this RFI report.

Table 8-6(b) presents the target levels for groundwater for the exposure pathway and receptor combinations listed above.

8.4.3 Target Levels for Indoor Inhalation Pathways

This section describes the procedure used to calculate the risk-based target levels for the indoor inhalation of vapors from subsurface soil and groundwater for a resident using the J&E model (EPA, 2004a). The target levels for this pathway and receptor combination were developed only

for the volatile chemicals. As per the EPA (2004a), a chemical was considered as volatile if it's Henry's law constant (H) is 1×10^{-5} atm-m^3/mol (unitless H of 4.2×10^{-4}) or greater and it's molecular weight is 200 gram/mole or less.

Specifically, the calculation of risk-based target levels requires the following:

- Toxicity parameters;
- Physical and chemical parameters;
- Exposure factors;
- Source parameters;
- Geotechnical parameters;
- Building parameters; and
- Target risk levels.

Each of these is discussed below.

8.4.3.1 Toxicity Values

The toxicity of chemicals with carcinogenic adverse health effects associated with inhalation exposure is quantified using unit risk. For chemicals that cause non-carcinogenic adverse health effects, toxicity associated with inhalation exposure is typically quantified by reference concentration. The chemical-specific toxicity parameters for the COPCs used are the default values from the EPA spreadsheet implementation of the J&E model and are presented in Table 8-7(a).

8.4.3.2 Physical and Chemical Properties

The development of risk-based target levels requires physical and chemical properties of the COPCs. The chemical-specific physical and chemical parameters for the COPCs used are the default values from the EPA spreadsheet implementation of the J&E model and are presented in Table 8-7(a).

8.4.3.3 Exposure Factors

Exposure factors describe the physiological and behavioral characteristics of the receptors. The receptor-specific exposure factors and their values used to evaluate the risk-based soil and groundwater screening levels are presented in Table 8-7(b). The exposure factors were obtained from the *Technical Background Document for Development of Soil Screening Levels* (Revision 4.0) (NMED, 2006). For Site SD-08, the site-specific receptor considered for the indoor inhalation pathway is a resident.

8.4.3.4 Source Parameters

The following source parameters are required to evaluate indoor inhalation of vapors.

- **Average soil temperature:** For New Mexico, the range of groundwater temperature is 52 to 62 °F (USEPA, 2004a). The groundwater temperature of 62 °F (17 °C) was considered as the approximate soil temperature;

- **Depth below grade to top of contamination:** For volatile COPCs, the maximum detected concentrations were observed from the soil samples collected from 0 to 2 ft bgs. Therefore, conservatively, an average depth of 1 foot (30.48 centimeters [cm]) was used for the depth below grade to top of contamination; and
- **Depth below grade to groundwater:** As per Section 3.6 of this RFI report, depth to water ranges from approximately 8 to 10 ft bgs at the site. The average value of 9 feet (274.32 cm) was used for the depth below grade to groundwater.

These parameters are presented in Table 8-7(c).

8.4.3.5 Geotechnical Parameters

The following geotechnical parameters are required to evaluate indoor inhalation of vapors.

- Soil dry bulk density;
- Soil total porosity;
- Soil water-filled porosity; and
- Soil organic carbon fraction.

For the SD-08 site, the vadose zone soil type is silty and clayey sand (see Section 3.4 of this RFI report). However, the most similar soil type to silty and clayey sand from the default Soil Conservation Service (SCS) soil type listed in the EPA spreadsheet is loamy sand. Therefore, default dry bulk density, total porosity, and water-filled porosity values for loamy sand soil types were used. The site-specific value of 0.00365 was used for organic carbon fraction (see Table 7-2). These geotechnical parameters are presented in Table 8-7(c). Note, site-specific geotechnical parameters presented in Table 7-2 were not used because these reported values appear inconsistent. For example the reported bulk density of 0.81 grams per milliliter (g/mL) for SB-08-SB-24-8 is likely incorrect. Similarly, the specific gravity values appear low.

8.4.3.6 Building Parameters

The following building parameters are required to evaluate indoor inhalation of vapors:

- Depth below grade to bottom of enclosed space floor;
- Enclosed space floor thickness;
- Enclosed space floor length;
- Enclosed space floor width;
- Enclosed space height;
- Floor-wall seam crack width;
- Indoor air exchange rate; and
- Average vapor flow rate into building.

Figure 8-2 shows all of the building parameters that are required to evaluate the indoor inhalation pathway. For depth below grade to bottom of enclosed space floor, the default value of 15 cm for slab-on-grade construction was considered (EPA, 2004a). For other building parameters, default values in the EPA spreadsheet were used. These values are presented in Table 8-7(c).

8.4.3.7 Target Risk Levels

The target risk for carcinogenic compounds of 1×10^{-5} and target Hazard Quotient (HQ) of 1.0 (NMED, 2006) were used to develop the risk-based target levels for indoor inhalation pathways.

The above input parameters were used in the EPA spreadsheet implementation of the J&E model to calculate the target levels for soil and groundwater. The target levels for indoor inhalation of vapors were calculated for child and adult resident, and the minimum of the two target levels was used. Those values are presented Tables 8-6(a) and 8-6(b). The outputs of J&E model are included in Appendix G.

8.4.4 Groundwater Target Levels for Construction Worker

This section describes the procedure used to calculate the risk-based target levels for the dermal contact with groundwater and the outdoor inhalation of vapors from groundwater for construction worker. Note, these pathways are not accounted for by NMED SSLs or the groundwater standards. The equations used for developing the groundwater target levels for construction worker are included in Appendix H.

Specifically, the calculation of risk-based target levels requires the following:

- Toxicity parameters;
- Physical and chemical parameters;
- Exposure factors;
- Fate and transport parameters; and
- Target risk levels.

Toxicity parameters and physical and chemical parameters used are included in Table 8-8(a). Values used for exposure factors and their sources are presented in Table 8-8(b). Values used for fate and transport parameters and their sources are presented in Table 8-8(c). Target risk levels used were the same as discussed above for the estimation of indoor air concentrations.

8.5 Calculation of Representative Concentration

The maximum detected soil and groundwater concentrations were obtained from the data used for risk assessment (Tables 8-2(a) through 8-2(d)). As a conservative measure, these maximum detected concentrations were compared with the target levels for soil and groundwater (Tables 8-6(a) and 8-6(b)).

For the chemicals whose maximum detected concentration exceeded the target levels, the average concentrations were compared with the target levels. The average concentrations are more representative of the concentrations. To calculate the average concentrations, the non-detect values were replaced with ½ the detection limits.

8.6 Comparison of Representative Concentrations with Target Levels

8.6.1 Comparison of Maximum Detected Concentrations with Target Levels

The comparison of maximum detected concentrations with target levels is presented in Tables 8-9(a) and 8-9(b) for soil and groundwater, respectively.

The maximum detected soil concentrations obtained from the soil data used for the risk assessment (see Table 8-2(b)) were compared with the target levels for soil (see Table 8-6(a)) and are presented in Table 8-9(a). The maximum detected TRPH concentration in soil exceeded the target levels for the combined pathway from soil for future residents and future construction workers. For all other COPCs, the maximum detected concentrations did not exceed the target levels for soil.

The maximum detected groundwater concentrations obtained from the groundwater data used for the risk assessment (see Table 8-2(d)) were compared with the target levels for groundwater (see Table 8-6(b)) and are presented in Table 8-9(b). The maximum detected 1,2-dichloroethane concentration in groundwater exceeded the target level for indoor inhalation of vapors from groundwater for future potential resident. For all other COPCs, the maximum detected concentrations did not exceed the target levels for groundwater.

8.6.2 Comparison of Average Concentrations with Target Levels

For the two chemicals for which the maximum soil and groundwater concentrations exceeded the SSLs, the comparison of average concentrations with target levels is presented in Tables 8-10(a) and 8-10(b) for soil and groundwater, respectively.

For soil, the average soil concentration of TRPH was estimated using data collected onsite from SB-08-01 through SB-08-06 and is shown in Table 8-10(a). The comparison of average soil concentration of TRPH with target levels is presented in Table 8-11(a). The table shows that the average soil concentration of TRPH did not exceed the target levels for the combined pathway from soil for the resident or the construction worker.

For groundwater, the average groundwater concentration of 1,2-dichloroethane was estimated from the groundwater data collected on-site (MW-08-01, MW-08-03, MW-08-05, and MW-08-07). The average is shown in Table 8-10(b). The comparison of average groundwater concentration of 1,2-dichloroethane with target levels is presented in Table 8-11(b). The table shows that the average groundwater concentration of 1,2-dichloroethane (0.044 mg/L) did not exceed the target level for indoor inhalation of vapors from groundwater for resident (0.0682mg/L). It should be noted that the indoor inhalation of vapors from groundwater for a resident is the most conservative groundwater target level.

8.6.3 Summary of Comparison with Target Levels

The above comparisons are summarized as follows:

1. The maximum detected TRPH concentration in soil exceeded the soil target level. Therefore, the average TRPH concentration in soil was compared with the soil target level. The average soil concentration did not exceed the soil target level. Therefore, the soil concentration is protective of future on-site residents and future on-site construction workers. It should be noted that the comparison of average concentrations with the SSLs is reasonable because the models used to estimate SSLs are based on the average concentrations.
2. The maximum detected 1,2-dichloroethane concentration in groundwater exceeded the groundwater target level. Therefore, the average concentration in groundwater was compared with the groundwater target level. The average concentration in groundwater did not exceed the groundwater target level. Therefore, the groundwater concentration is protective of future on-site residents and future on-site construction workers.

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9 CONCLUSIONS AND RECOMMENDATIONS

Based on land use, it is identified that future residents and future construction workers are the site-specific receptors. The consideration of these receptors assumes unrestricted land use. The complete exposure pathways that have been identified include:

- Future Resident
  - Dermal contact with surficial soil
  - Ingestion of surficial soil
  - Outdoor inhalation of vapors or particulates from surficial soil
  - Indoor inhalation of vapors from subsurface soil
  - Indoor inhalation of vapors from groundwater
- Future Construction Worker
  - Dermal contact with soil to depth of construction
  - Ingestion of soil to depth of construction
  - Outdoor inhalation of vapors or particulates from soil to depth of construction
  - Dermal contact with groundwater
  - Inhalation of vapors from groundwater

Evaluation of the TDS indicated that it exceeds 10,000 mg/L, hence the water was not considered potable.

The maximum detected soil and groundwater concentrations were compared with the soil target levels and the groundwater target levels, respectively. The maximum concentration for one COPC (TRPH) in soil and one COPC (1,2-dichloroethane) in groundwater exceeded the SSL and NMWQCC standard respectively. For these two COPCs the average concentration was compared with the target levels. The average concentration of these two COPCs did not exceed the target levels.

Based on the above evaluation, the residual soil and groundwater concentrations are protective of future receptors at the site. These concentrations are anticipated to continue to reduce in time due to natural attenuation processes further reducing the risk. Based on the results of the soil and groundwater samples collected on-site and the conclusions of the risk evaluation presented above, no further action is recommended for the SD-08 site.

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10 REFERENCES

10.1 Site-Specific References

Bhate Environmental Associates, Inc. November 2003. *Basewide Quality Assurance Project Plan.*

Bhate Environmental Associates, Inc. August 2005. *Additional Investigation Requirements Work Plan, ERP Site SD-08, Holloman Air Force Base, New Mexico.*

Bhate. May 2006. *2005 Long-Term Groundwater Monitoring Report, Holloman Air Force Base, New Mexico.*

CH2M Hill, 1983. *Installation Restoration Program Phase I Records Search, Holloman Air Force Base, New Mexico.*

Ebasco/Groundwater Technology, October 1995. *Draft Final Site Investigation Report Waste Sites SS-06, SD-15, AOC-RR, and AOC-BBMS, Holloman Air Force Base, New Mexico.*

Foster Wheeler/Radian, June 1995. *Draft Final Phase II RCRA Facility Investigation Report, Table 1 Solid Waste Management Units, Holloman Air Force Base, New Mexico, Volume I.*

New Mexico Environment Department. February 2004. Appendix 4-B RCRA Facility Investigation (RFI) Outline, Holloman Air Force Base, Hazardous Waste Facility Permit No. NM6572124422.

New Mexico Environment Department. February 9, 2005. Letter (HWB-HAFB-04-009) from Steve Jeter (NMED, HWB) to Debbie Hartell, Chief of Environmental Flight, 49 CES/CEV, Holloman AFB, NM.

New Mexico Environment Department. July 27, 2005. Request for Supplemental Information Letter HWB-HAFB-05-003) from Cornelius Amindyas (NMED, HWB) to Debbie Hartell, Chief of Environmental Flight, 49 CES/CEV, Holloman AFB, NM.

Radian, June 1992a. *Draft Final Remedial Investigation Report, Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, New Mexico, Volume I.*

Radian, November 1992b. *Draft Final Corrective Measures Study Plan, Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, New Mexico.*

Radian, December 1993a. *Draft Final Feasibility Study, Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, New Mexico.*

Radian, December 1993b. *Basewide Background Study – Sewage Lagoons and Lakes Investigation, Holloman Air Force Base, New Mexico.*

Radian Corporation. September 1995. *Decision Documents Installation Restoration Program, Holloman Air Force Base, New Mexico.*

10.2 General References

ASTM, 1995. *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites.*

New Mexico Environmental Department. June 2006. *NMED Technical Background Document for Development of Soil Screening Levels, Revision 4.0.*

NMAC 20.6.2, New Mexico Water Quality Control Commission Regulations, September 15, 2002. (http://www.nmenv.state.nm.us/NMED_Regs/gwb/20_6_2_NMAC.pdf).

New Mexico Environment Department. 2003. *TPH Screening Guidelines.*

USEPA. 1989. *Risk Assessment Guidance for Superfund - Volume I, Human Health Evaluation Manual* (Part A).

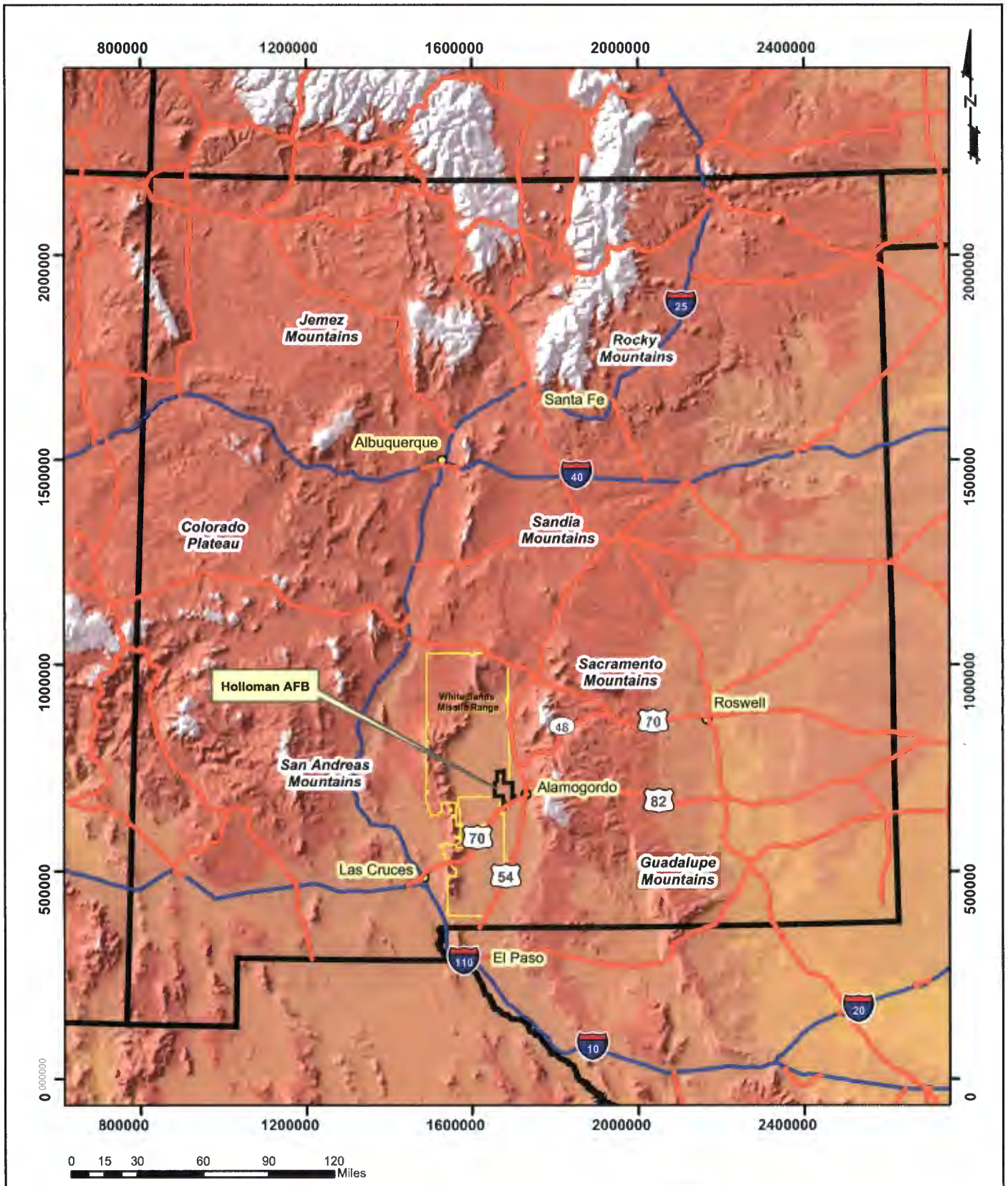
USEPA. 2004a. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings.*

USEPA. 2004b. *Risk Assessment Guidance for Superfund - Volume I, Human Health Evaluation Manual, Part E: Supplemental Guidance for Dermal Risk Assessment.*

Western Regional Climate Center (WRCC). 2003. *State of New Mexico Desert Research Institute: Climate of New Mexico.* http://www.wrcc.dri.edu/narratives/NEWMEXICO.htm.

White Sands Missile Range (WSMR). 2003. Public Affairs Office: Tularosa Basin Geology. http://www.wsmr.army.mil/paopage/Pages/WU%2360.htm.

FIGURES



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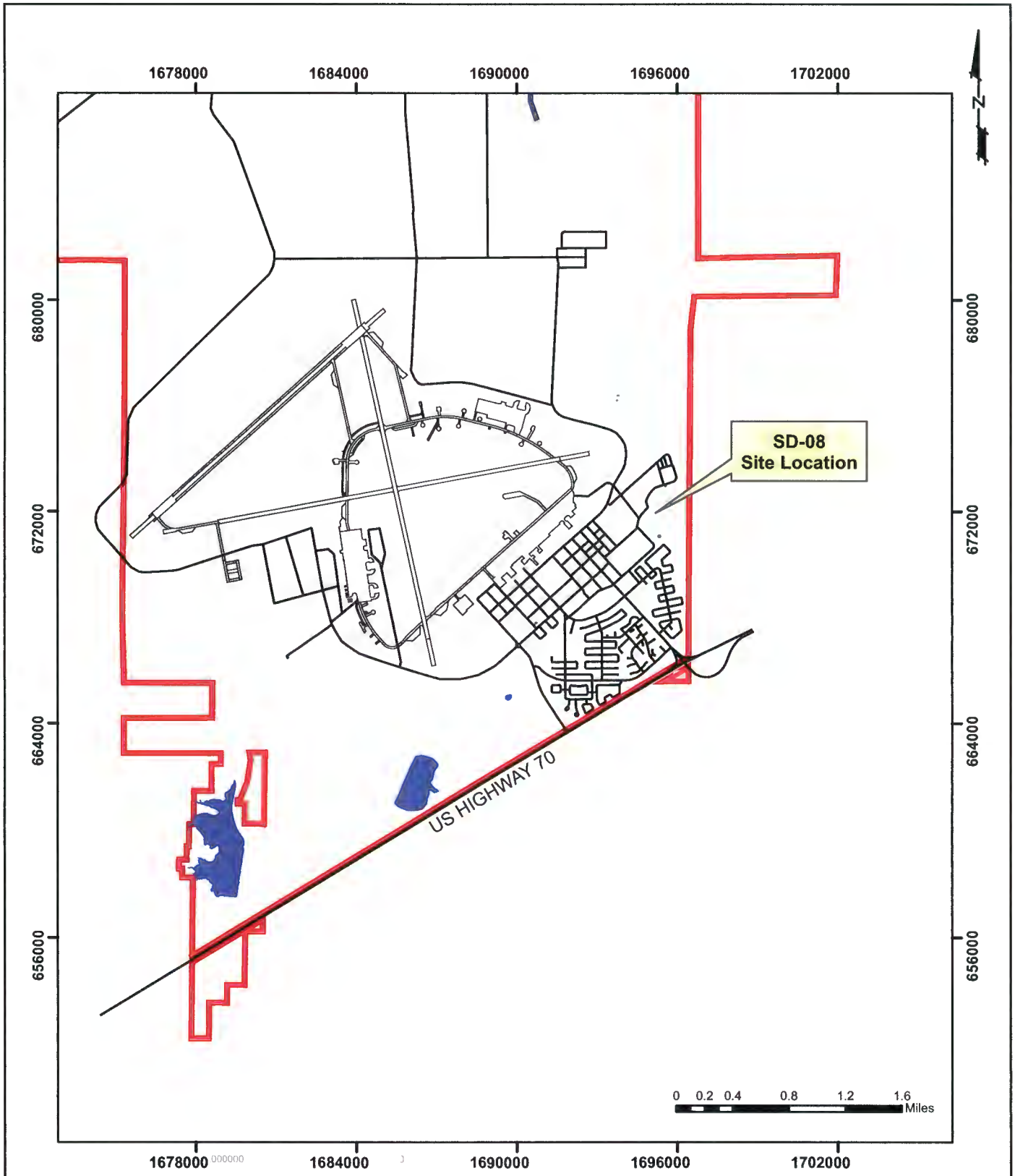
Holloman AFB, New Mexico Location Map

PROJECT NO.	SCALE	DATE	DRAWN BY:
9050361	Shown	3/30/07	cm
			DRAWING NO: Figure 2-1

Site SD-08
Holloman AFB, New Mexico

Figure 2-1



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SD-08
Location Map

PROJECT NO.	SCALE	DATE	DRAWN BY:
9050361	Shown	2/20/07	cm
			DRAWING NO: fig2-2

Site SD-08
Holloman AFB, New Mexico

Figure 2-2

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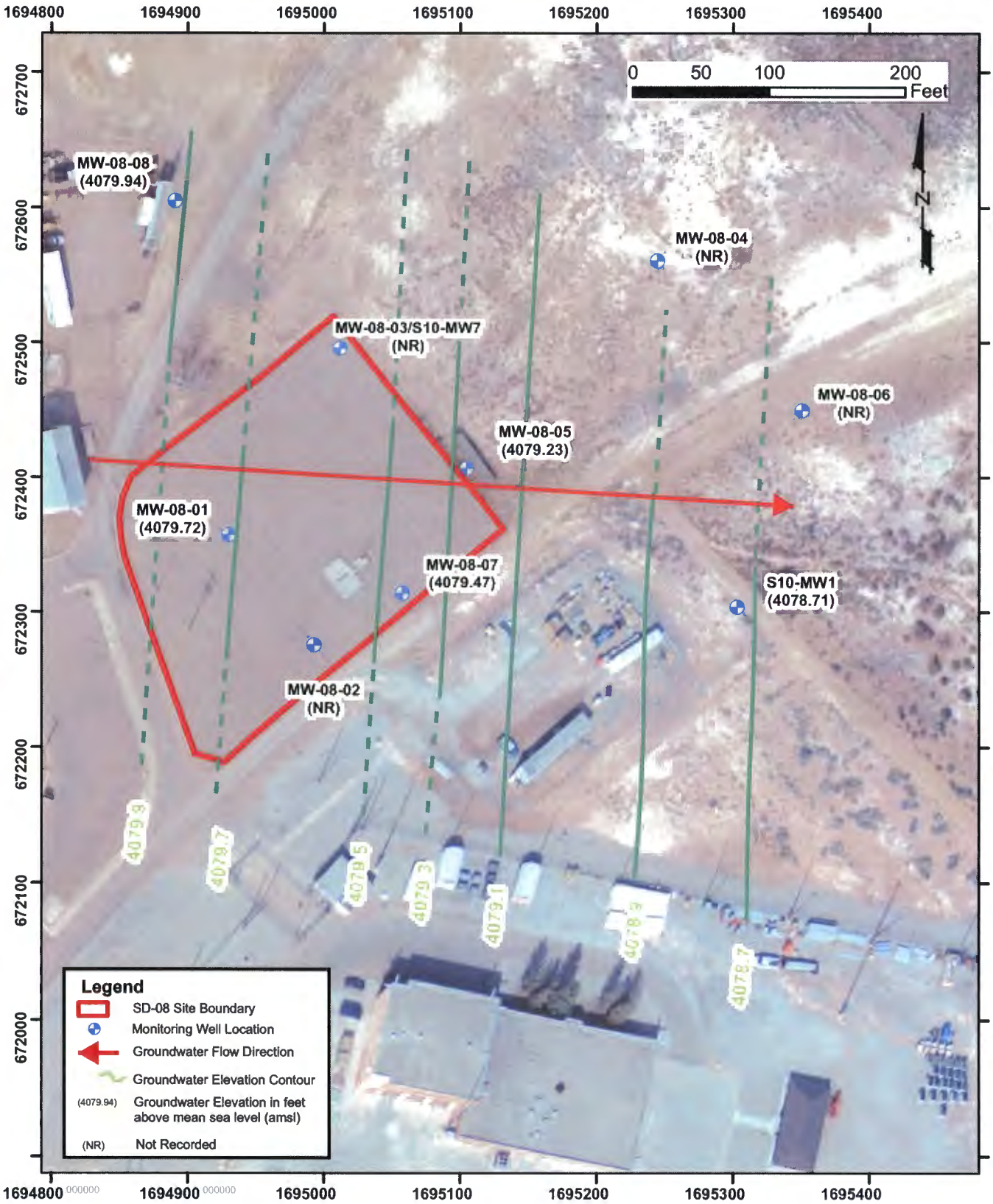
SD-08 Sample Location Map
Current and Previous Investigations

PROJECT NO.	SCALE	DATE	DRAWN BY:
9050361	Shown	3/30/07	cm
			DRAWING NO: Figure 2-3

Site SD-08
Holloman AFB, New Mexico

Figure 2-3



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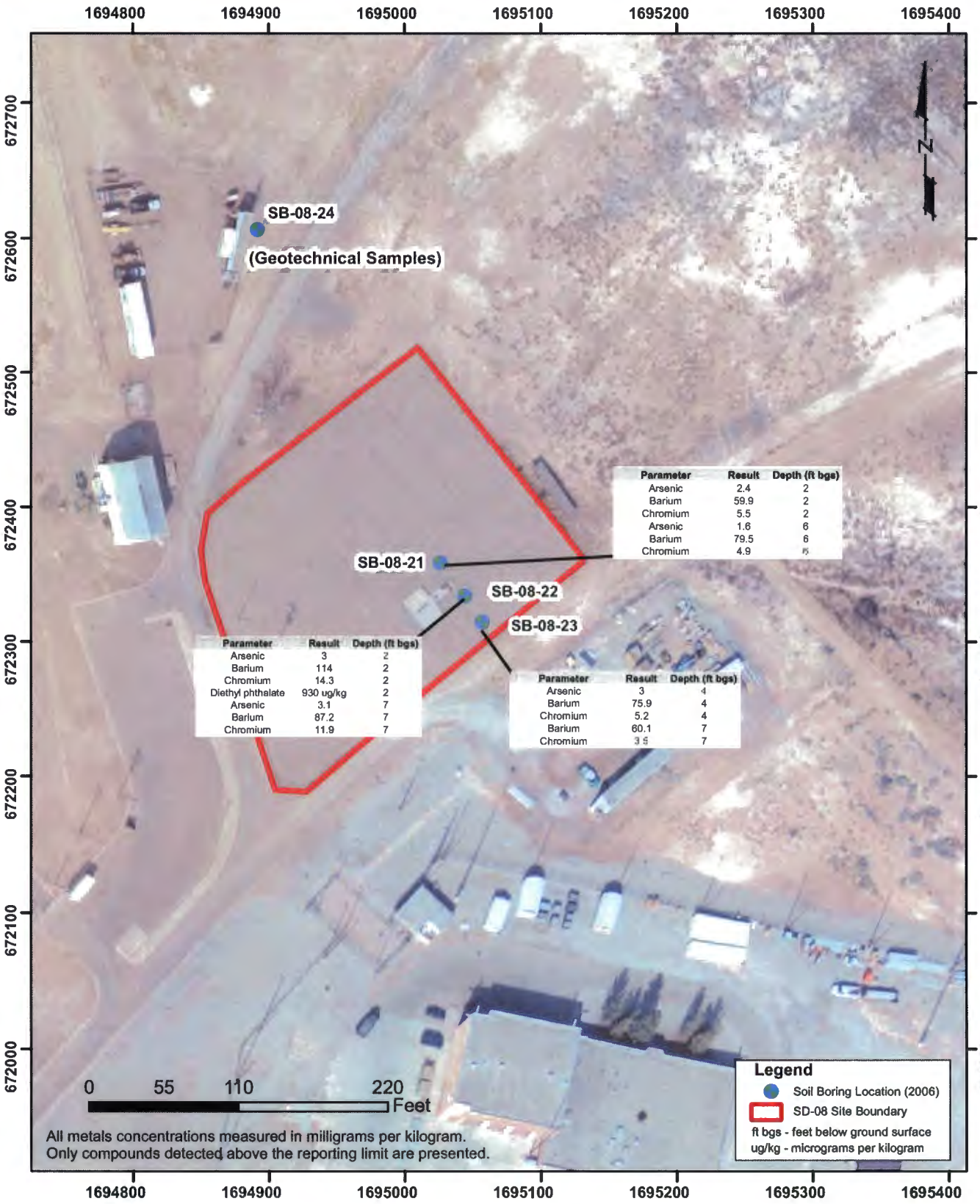
Potentiometric Surface Map (January 2007)

PROJECT NO.	SCALE	DATE	DRAWN BY: cm
9050361	Shown	3/30/07	DRAWING NO: Figure 3-1

Site SD-08
Holloman AFB, New Mexico

Figure 3-1



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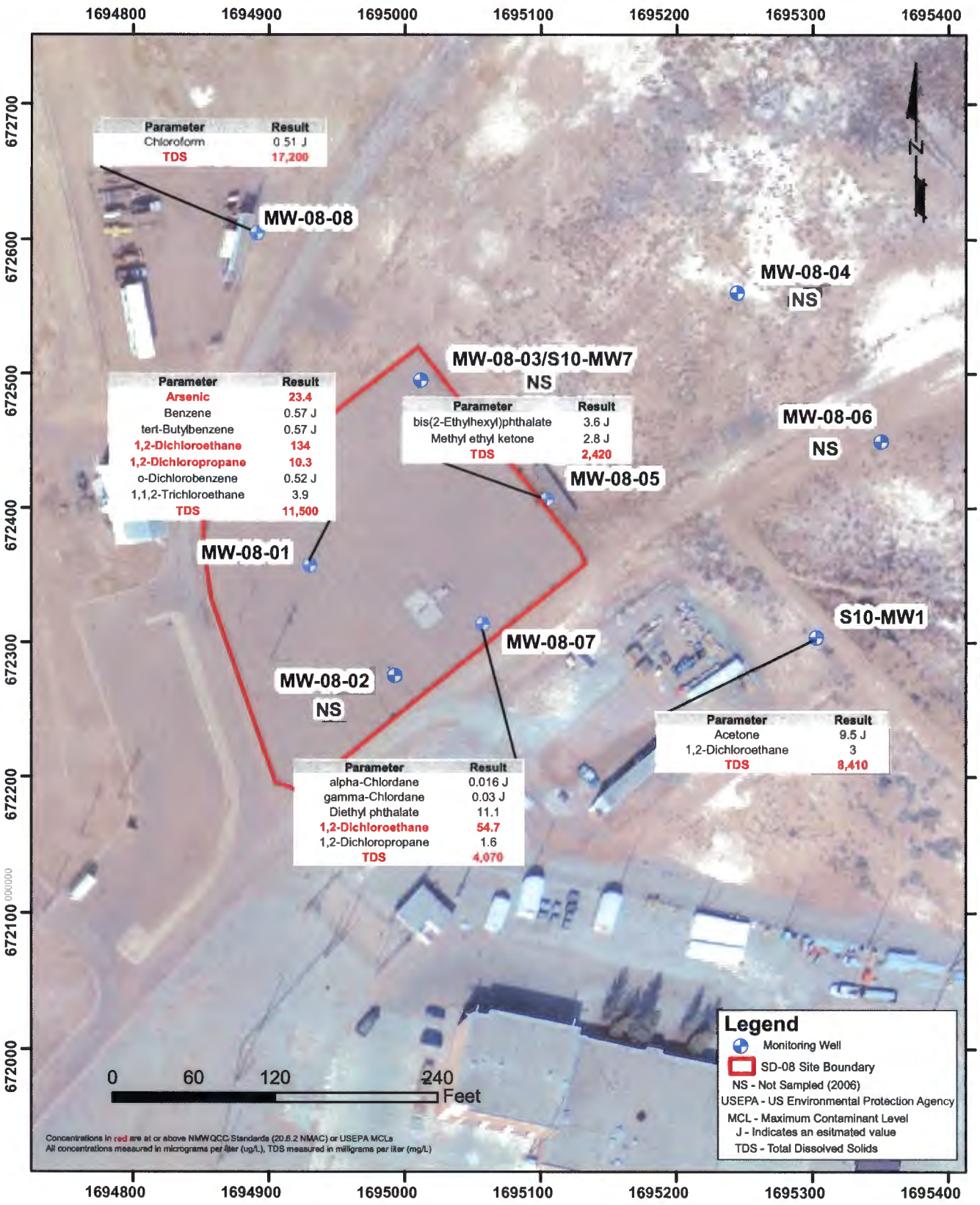
Soil Sampling Analytical Results (October 2006)

PROJECT NO.	SCALE	DATE	DRAWN BY:
9050361	Shown	4/2/07	cm
			DRAWING NO: Figure 7-1

Site SD-08
Holloman AFB, New Mexico

Figure 7-1



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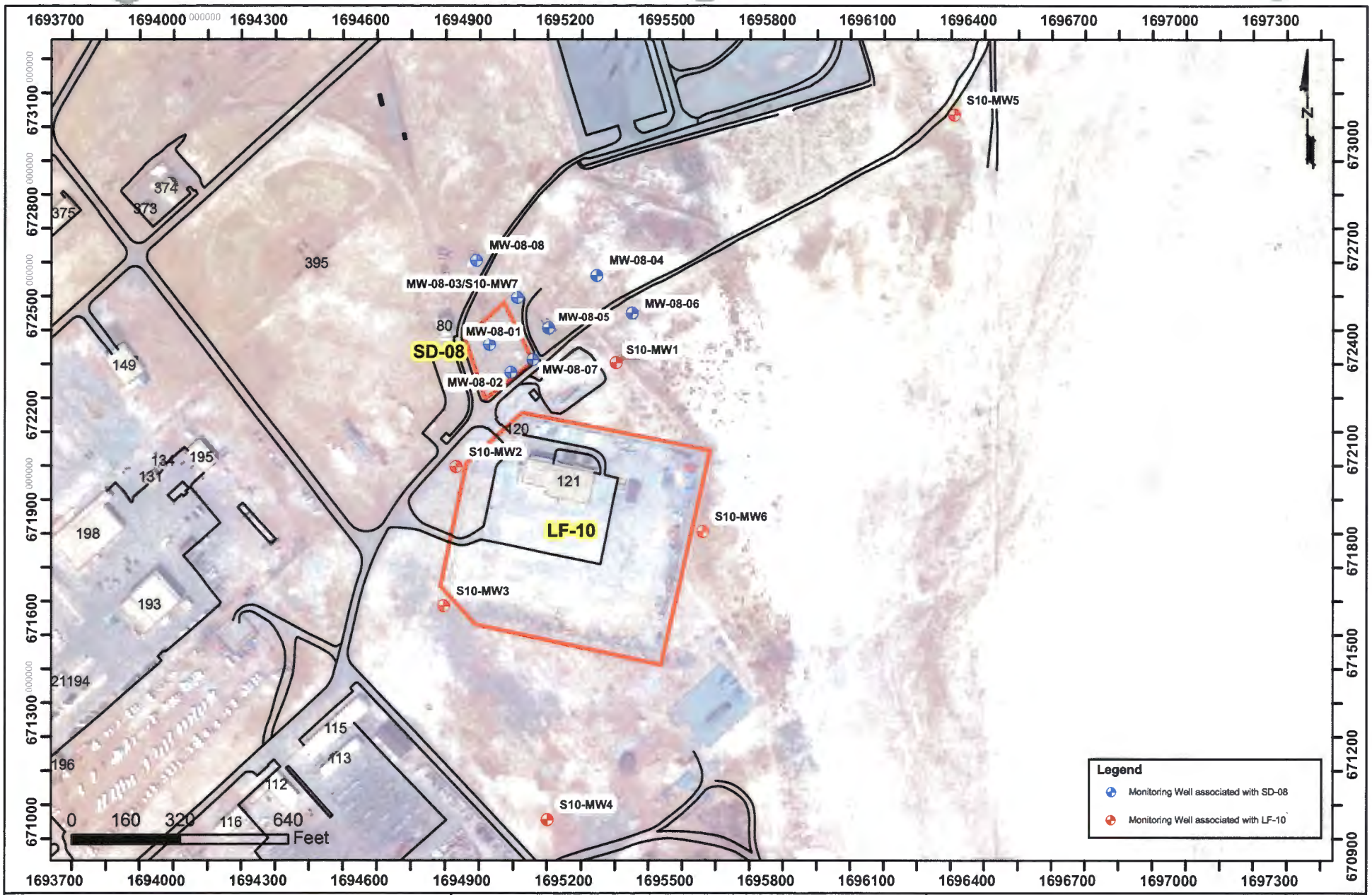
Groundwater Sampling Analytical Results (November/October 2006)

PROJECT NO.	SCALE	DATE	DRAWN BY:
9050361	Shown	4/2/07	cm
			DRAWING NO: Figure 7-2

Site SD-08
Holloman AFB, New Mexico

Figure 7-2



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LF-10 Monitoring Well Location Map

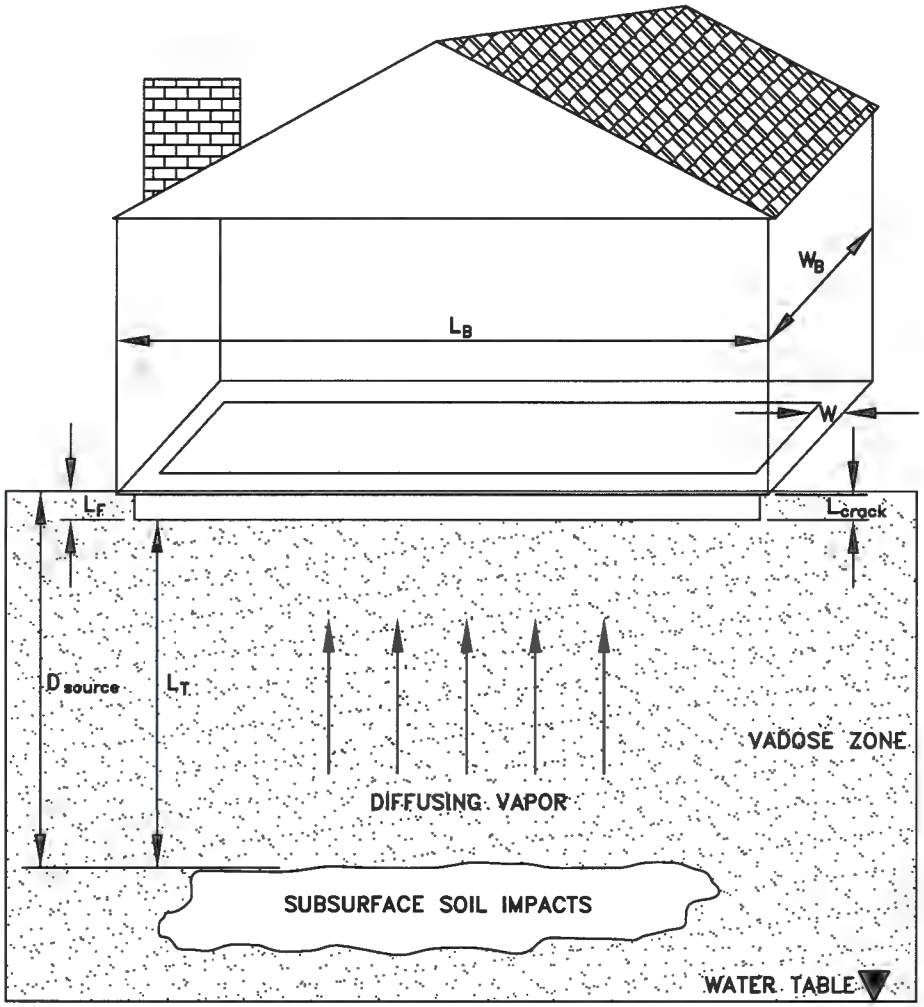
PROJECT NO.	SCALE	DATE	DRAWN BY:
9050361	Shown	3/30/07	cm
			DRAWING NO: Figure 8-1

Site SD-08
Holloman AFB, New Mexico

Figure 8-1

LEGEND:

D_{source}	DISTANCE FROM GROUND SURFACE TO TOP OF CONTAMINATION (cm)
L_B	ENCLOSED SPACE FLOOR LENGTH (cm)
L_{crack}	ENCLOSED SPACE FOR FLOOR THINKNESS (cm)
L_F	DEPTH BELOW GRADE TO BOTTOM OF ENCLOSED SPACE FLOOR (cm)
L_T	DISTANCE FROM BOTTOM OF SLAB TO TOP OF CONTAMINATION (cm)
W	FLOOR–WALL SEAM CRACK WIDTH (cm)
W_B	ENCLOSED SPACE FLOOR WIDTH (cm)



BUILDING WITH SLAB–ON–GRADE

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SCHEMATIC DIAGRAM FOR INDOOR VAPOR INTRUSION

PROJECT NO.	SCALE	DATE	DRAWN BY: MRM
9050361	NTS	3/07/07	DRAWING NO: Figure 8–2

Site SD–08
Holloman AFB, New Mexico

Figure 8–2

TABLES

Table 3-1
Groundwater Elevation Summary
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Well	Northing	Easting	Elevation TOC (ft above msl)	DTW from TOC (ft below TOC)	Groundwater Elevation January 18, 2007 (ft above msl)
MW-08-01	672357.186	1694929.744	4,090.696	10.98	4,079.72
MW-08-05	672406.611	1695104.326	4,089.007	9.78	4,079.23
MW-08-07	672313.405	1695057.764	4,087.779	8.31	4,079.47
MW-08-08	673605.206	1694890.53	4,087.489	7.55	4,079.94
S10-MW1	672303.868	1695302.668	4,089.448	10.74	4,078.71

Notes:
TOC = Top of Casing
DTW = Depth to Water
ft = feet
msl = mean sea level

Monitoring Well Construction Details
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Well ID	Installation Date	Sampled 2006	Diameter (inches)	Screen Interval (ft bgs)	Depth to Water (ft below TOC)	Total depth (feet)	Status
MW-08-01	8/7/1991	1	2	10.2 - 19.7	10.98	23.3	Active
MW-08-02	8/8/1991	0	2	6.7 - 16.7	NR	18.9	Active
MW-08-03[1]	1/13/1989	0	2	9.5 - 19.5	NR	19.8	Active
MW-08-04	11/7/1994	0	2	6.1 - 16.1	NR	17.5	Active
MW-08-05	11/8/1994	1	2	6.2 - 16.2	9.78	17.6	Active
MW-08-06	11/7/1994	0	2	6.1 - 16.1	NR	17.5	Active
MW-08-07	10/27/2006	1	2	6.5 - 16.5	8.31	16.75	Active
MW-08-08	10/27/2006	1	2	6.5 - 16.5	7.55	16.75	Active
S10-MW1	11/19/1988	1	2	8.5 - 18.5	10.74	18.8	Active

Notes:

[1] Monitoring well MW-08-03 is Site LF-10 monitoring well S10-MW7

ft bgs - Feet below ground surface

ft below TOC - Feet below Top of Casing (based on January 15, 2007 groundwater elevation)

NR - Not Recorded

Table 7-1
Soil Analytical Data (October 2006)
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Client Sample ID:	Soil Screening Levels		SD-08-SB21-2		SD-08-SB21-2a		SD-08-SB21-6		SD-08-SB22-2		SD-08-SB22-7		SD-08-SB23-4		SD-08-SB23-7	
Lab Sample ID:	Basewide UTL[1]	NMED Residential[2]	F44808-1		F44808-2		F44808-3		F44814-1		F44814-2		F44808-4		F44808-5	
Date Sampled:			10/27/2006		10/27/2006		10/27/2006		10/27/2006		10/27/2006		10/27/2006		10/27/2006	
Analyte			Result[3]	Q	Result[3]	Q	Result[3]	Q	Result[3]	Q	Result[3]	Q	Result[3]	Q	Result[3]	Q
Volatile Organic Compounds			µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
All			ND		ND		ND		ND		ND		ND		ND	
Semi-Volatile Organic Compounds		mg/kg	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
Diethyl phthalate	NV	48,900	129	J	98	U	110	U	930		99	U	150	J	110	U
Pesticides		mg/kg	µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg		µg/kg	
4,4'-DDE	NV	17.2	0.77	U	0.77	U	0.88	U	1.1	J	0.80	U	0.87	U	0.86	U
RCRA Metals Analysis	mg/kg	mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Arsenic	6.88	3.9	2.4		2.4		1.6		3.0		3.1		3.0		0.99	J
Barium	84.36	15,600	59.9		63.7		79.5		114	J	87.2	J	75.9		60.1	
Cadmium	1.04	39	0.031	J	0.038	J	0.057	J	0.13	J	0.024	J	0.080	J	0.027	J
Chromium	6.6	234	5.5		5.5		4.9		14.3		11.9		5.2		3.5	
Lead	NV	400	2.8	J	2.9	J	2.2	J	5.3	U	4.2	U	2.5	J	1.8	J
Mercury	NV	6.11	0.0078	U	0.013	J	0.0079	U	0.0092	J	0.021	J	0.0075	U	0.0078	U
General Chemistry			%		%		%		%		%		%		%	
Solids, Percent	NV	NV	85.1		86.6		75.6		74.3		82.1		75.8		77.3	

Notes:

NMED = New Mexico Environment Department
UTL = Upper Tolerance Limit
µg/kg = Micrograms per kilogram
mg/kg = Milligrams per kilogram
% = Percent
ND = Not Detected
NV = No Value
Q = Qualifier
U = Not detected
J = Indicates an estimated value

[1]Radian, December 1993. Basewide Background Study - Sewage Lagoons and Lakes, Holloman, AFB, NM.

[2]NMED. June 2006. *Technical Background Document for Development of Soil Screening Levels*, Revision 4.0.

[3] If results are not detected (U) then the value is set at the Method Detection Limit (MDL)

Bold values indicate analytes above NMED Soil Screening Levels (Revision 4.0, June 2006)

Table 7-2
Soil Geotechnical Parameters
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	**Method**	**Unit**	**SD-08-SB24-3**	**SD-08-SB24-8**	**Average**
Depth (ft bgs)			**1-3**	**6-8**	
Date sampled			**10/27/2006**	**10/27/2006**	
Parameter					
Bulk Density (Dry Basis)	ASTM D2937-94 M	g/mL	1.3	0.81	1.055
Fractional Organic Carbon	ASTM D2974-87	%	3.9	3.4	3.650
Moisture Content (Solids, Percent)	EPA 160.3	%	82.9	86.9	84.900
Specific Gravity	ASTM 1429		1.7	1.4	1.550

Notes:
ASTM - American Society for Testing and Materials
EPA - Environmental Protection Agency
ft bgs - Feet below ground surface
g/mL - grams per milliliter
% - percent

Table 7-3
Groundwater Analytical Data (November/December 2006)
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Client Sample ID:	Groundwater Screening Levels			S10-MW01		SD-08-MW08-01		SD-08-MW08-05		SD08-MW08-07		SD08-MW08-08		SD08-MW08-08D	
Lab Sample ID:	NMWQCC[1]	EPA MCL	Basewide UTL[2,3]	F45254-4		F45254-1		F45254-2		F45658-1		F45339-1		F45339-2	
Date Sampled:				11/13/2006		11/13/2006		11/13/2006		12/1/2006		11/16/2006		11/16/2006	
Analyte				Result[4]	Q	Result[4]	Q	Result[4]	Q	Result[4]	Q	Result[4]	Q	Result[4]	Q
Volatile Organic Compounds	µg/L	µg/L	µg/L	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
Acetone	NV	NV	NV	9.5	J	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	10	5	NV	0.50	U	0.57	J	0.50	U	0.50	U	0.50	U	0.50	U
tert-Butylbenzene	NV	NV	NV	0.50	U	0.57	J	0.50	U	0.50	U	0.50	U	0.50	U
Chloroform	100	NV	NV	0.50	U	0.50	U	0.50	U	0.50	U	0.51	J	0.50	U
1,2-Dichloroethane	10	5	NV	3.0		**134** [a]		0.50	U	**54.7**[b]		0.50	U	0.50	U
1,2-Dichloropropane	NV	5	NV	0.50	U	**10.3**		0.50	U	1.6[b]		0.50	U	0.50	U
o-Dichlorobenzene	NV	600	NV	0.50	U	0.52	J	0.50	U	0.50	U	0.50	U	0.50	U
Methyl ethyl ketone	NV	NV	NV	2.5	U	2.5	U	2.8	J	2.5	U	2.5	U	2.5	U
1,1,2-Trichloroethane	10	5	NV	0.50	U	3.9		0.50	U	0.50	U	0.50	U	0.50	U
Semi-Volatile Organic Compounds	µg/L	µg/L	µg/L	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Diethyl phthalate	NV	NV	NV	2.0	U	2.0	U	2.0	U	11.1		2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	NV	NV	NV	2.5	U	2.5	U	3.6	J	2.5	U	2.5	U	2.5	U
Pesticides	µg/L	µg/L	µg/L	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
alpha-Chlordane	NV	2	NV	0.015	U	0.014	U	0.015	U	0.016	J	0.015	U	0.015	U
gamma-Chlordane	NV	2	NV	0.015	U	0.014	U	0.015	U	0.030	J	0.015	U	0.015	U
RCRA Metals Analysis	µg/L	µg/L	µg/L	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q	µg/L	Q
Arsenic	100	10	35.4	7.6	J	**23.4**		4.5	J	4.8	J	7.4	J	6.0	J
Barium	1,000	2,000	85.2	20.8	J	15.8	J	48.3	J	28.0	J	41.1	J	46.0	J
Cadmium	10	5	7.4	1.6	J	0.30	U	0.30	U	1.0	U	0.30	U	0.43	J
Chromium	50	100	7.2	3.8	J	0.60	U	0.60	U	0.70	J	0.68	J	0.60	U
Lead	50	15	5.6	1.7	U	1.7	U	2.9	J	1.8	J	1.7	U	1.7	U
Mercury	2	2	0.03	0.22	J	0.21	J	0.15	J	0.10	U	0.10	U	0.10	U
Silver	50	NV	6.7	0.90	U	0.90	U	0.90	U	1.1	J	0.90	U	0.90	U

Notes:

NMWQCC = New Mexico Water Quality Control Commission

EPA = Environmetal Protection Agency

MCL = Maximum Contaminant Level

UTL = Upper Tolerance Limit

µg/L = micrograms per liter

mg/L = milligrams per liter

NV = No Value

Q = Qualifier

U = Not detected

J = Indicates an estimated value

[1]Standards for Groundwater, if 10,000 mg/L Total Dissolved Solids concentration or less, New Mexico Administrative Code 20.6.2.3103

[2]Basewide Background Study, Dec. 1993, Radian Corp.

[3]UTL for dissolved metals in groundwater (Table 2.2)

[4] If results are not detected (U) then the value is set at the Method Detection Limit (MDL)

[a] Result is from Run #2. Sample re-analyzed beyond hold time; reported results are considered minimum values.

[b]Result is from Run # 2.

Bold value indicate analytes above NMWQCC Standard or EPA MCL

Table 7-4
Total Dissolved Solids Analytical Data (December 2006/January 2007)
Building 131 Washrack, Site SD-08, Holloman Air Force Base, New Mexico

Client Sample ID:	Groundwater Screening Levels			S10-MW-01		SD08-MW-01		SD08-MW08-05		SD08-MW08-08		SD08-MW08-08D		SD08-MW08-07	
Lab Sample ID:	NMWQCC	EPA MCL	Basewide UTL[1]	F46825-2		F46838-1		F46213-1		F46825-2		NA		F45658-1R	
Date Sampled:				1/25/2007		1/26/2007		12/17/2006		1/25/2007		NA		12/1/2006	
Analyte				Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Filterable Residue[1]	mg/L	mg/L	mg/L	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Total Dissolved Solids	1,000	500 [5]	NV	8,410		11,500		2,420		17,200		NA		4,070 [2]	J

Notes:
NMWQCC = New Mexico Water Quality Control Commission
EPA = Environmetal Protection Agency
MCL = Maximum Contaminant Level
UTL = Upper Tolerance Limit
mg/L = milligrams per liter
NA = Not Analyzed
NV = No Value
Q = Qualifier
J = Estimated due to holding time exceedance
[1] Basewide Background Study, Dec 1993, Radian Corp.
[2] Analyzed outside of holding time.
Bold value indicate analytes above NMWQCC Standard or EPA MCL

Table 8-1(a)
Comprehensive Soil Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-01		SB-08-02		SB-08-03		SB-08-04		SB-08-05		SB-08-06		SB-08-07	SB-08-08	SB-08-09
Depth (ft bgs)	0 - 2	6 - 8	0 - 2	5 - 7	0 - 2	10 - 12	0 - 2	2 - 4	2 - 4	6 - 8	2.5 - 4.5	7.5 - 9.5	0 - 2	0 - 2	0 - 2
Date	1991		1991		1991		1991		1991		1991		1993	1993	1993
Barium															
Beryllium	0.39	<0.45	0.36	0.43	0.34	<0.4	0.44	<0.38	0.45	<0.42	0.71	<0.40			
Cadmium	0.92	<1.1	1.8	<0.37	<0.78	<1.0	<0.77	<0.95	<0.80	<1.0	0.92	<1.0	ND		
Chromium	13	6	17	11	8.9	2.2	15	8.2	9.7	4	7.9	6.4			
Copper	51	<4.5	37	5.8	10	<4.0	20	7	3.2	<4.2	5.2	4.2			
Nickel	10	<4.5	9.3	6.1	6.8	<4.0	14	7.1	7	<4.2	6.8	4.9			
Zinc	180	12	620	21	48	6.3	50	30	23	9.6	16	11			
Arsenic	<1.3	<0.75	<3.3	1.6	<1.3	<0.76	1.8	1.5	2.1	1.1	3	1.1			
Lead	50	1.1	370	2.3	19	0.3	8.1	18	2	0.75	1	1.3	9.22		
Mercury	0.49	<0.06	2.2	<0.053	0.11	<0.064	0.8	<0.053	<0.053	<0.06	<0.056	<0.06	ND		
Selenium															
Silver															
TRPH	87.4	24.6	1,320	<11.5	1,740	<13.61	9,950	35.8	191	16.4	<12.3	<13.6			
4,4-DDD	0.11	<0.0006	4	0.001	0.028	<0.00079	0.23	<0.00061	0.00011 J	<0.00068	0.0032	0.004	0.0564	0.0094	0.0034
4,4-DDE	0.41	<0.0006	5.6	0.01	0.086	<0.00079	0.53	0.0033	0.001	<0.00068	0.000055 J	0.00076	0.0521	0.0081	0.009
4,4-DDT	0.4	<0.0012	9.3	0.012	0.026	<0.0016	0.5	0.001 J	0.00034 J	<0.0014	0.0013	0.002	0.0467	0.0056	0.0083
Aldrin	<0.0056	0.00049 J	0.041	0.00049 J	<0.0056	0.00045 J	0.005 J	<0.00061	<0.00061	<0.00068	<0.00061	0.0017			
Chlordane	0.95	<0.003	4	0.02	0.23	<0.0039	0.73	<0.0031	<0.003	<0.0034	0.017	0.032	0.0895 B	0.0859	0.0036
alpha-Chlordane															
gamma-Chlordane															
Endosulfan II	0.0025 J	<0.0018	<0.017	<0.0017	<0.017	<0.0024	<0.016	<0.0018	<0.0018	<0.0021	<0.0018	<0.0019			
Endosulfan sulfate	<0.028	0.0011 J	<0.028	0.00027 J	<0.028	0.00064 J	0.00068 J	<0.0031	<0.003	<0.0034	0.0023 JB	<0.0031			
Heptachlor	0.0063	0.00031 J	0.056	0.0009	<0.0056	0.00087	0.012	0.0003 J	0.00039 J	<0.00068	<0.00061	<0.00063	0.0041	0.0033	ND
Heptachlor epoxide	0.011	0.0003 J	0.074	0.0044	<0.0056	<0.00079	0.012	<0.00061	<0.00061	<0.00068	<0.00061	<0.00063			
delta-BHC	0.016	0.0016	0.021	0.0016	0.015	0.0021	<0.0055	0.0018	<0.00061	<0.00068	0.0018	0.0017			
gamma-BHC	<0.0056	0.00061	<0.0056	<0.00058	<0.0056	<0.00079	<0.0055	<0.00061	<0.00061	<0.00068	<0.00061	<0.00063			
1,1-Dichloroethene	<0.11	<0.12	<0.11	<0.12	<0.11	0.023 J	<0.11	<0.12	<0.12	<0.13	<0.12	<0.13			
Benzene	<0.11	<0.12	<0.11	<0.12	<0.11	<0.16	0.0026 J	<0.12	<0.12	<0.13	<0.12	<0.13			
Chlorobenzene	0.04 J	0.0028 J	0.015 J	<0.12	0.0056 J	<0.16	<0.11	<0.12	<0.12	<0.13	<0.12	<0.13			
Ethylbenzene	<0.11	<0.12	<0.11	<0.12	<0.11	<0.16	0.0026 J	<0.12	<0.12	<0.13	<0.12	<0.13			
Methylene chloride	0.15 B	0.051 JB	0.41 B	0.38 B	0.15 B	0.47 B	0.59 B	0.32 B	<0.12	<0.13	0.17 B	0.57 B			
Toluene	0.0057 J	<0.12	0.0074 J	0.0055 J	0.006 J	0.0071 J	<0.11	<0.12	<0.12	<0.13	<0.12	<0.13			
Diethyl phthalate															

Table 8-1(a)
Comprehensive Soil Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-10		SB-08-11		SB-08-12		SB-08-13			SB-08-14		SB-08-15		SB-08-16	SB-08-17	
Depth (ft bgs)	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6	0 - 2	2 - 4	0 - 2	0 - 2	2 - 4
Date	1993	1993	1993		1993		1993			1993		1993		1993	1993	
Barium																
Beryllium																
Cadmium	3.71		ND			ND		ND		ND					ND	
Chromium																
Copper																
Nickel																
Zinc																
Arsenic																
Lead	69.9		10.6			2.8		9.11		7.25					7.44	
Mercury	0.297		0.068			ND		ND		ND					ND	
Selenium																
Silver																
TRPH																
4,4-DDD	0.116	0.0015	0.021	ND	0.065 P	ND	0.492	0.0018 P	0.0049	ND	0.001	0.0017	0.0019	0.0015	ND	ND
4,4-DDE	0.0884	0.0014	0.0233	ND	1.85	0.012	2.5	0.0018	0.0121	0.0029	0.0059	0.0061	0.004	0.0102	0.106	0.0089
4,4-DDT	0.0825	0.0026	0.0206	ND	2.74	0.0079	4.21	0.0156	0.0184	0.0037	0.006	0.0035	0.004	0.0081	0.0296	0.0044
Aldrin																
Chlordane	0.263 B	0.0029 B	0.0577 B	0.238	0.0511 B	ND	0.386	0.0234	0.0018	0.0012	0.0029	0.0034	0.0022	ND	ND	ND
alpha-Chlordane																
gamma-Chlordane																
Endosulfan II																
Endosulfan sulfate																
Heptachlor	0.0089 P	ND	0.493	0.343	ND	ND	0.0078	0.0025	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide																
delta-BHC																
gamma-BHC																
1,1-Dichloroethene																
Benzene																
Chlorobenzene																
Ethylbenzene																
Methylene chloride																
Toluene																
Diethyl phthalate																

Table 8-1(a)
Comprehensive Soil Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-18	SB-08-19		SB-08-20		SD-08-SB21	SD-08-SB21 Dup	SD-08-SB21	SD-08-SB22		SD-08-SB23	
Depth (ft bgs)	0 - 2	0 - 2	2 - 4	0 - 2	2 - 4	2	2	6	2	7	4	7
Date	1993	1993		1993		Oct-06			Oct-06		Oct-06	
Barium						59.9	63.7	79.5	114.0	87.2	75.9	60.1
Beryllium												
Cadmium		ND				0.031 J	0.038 J	0.057 J	0.13 J	0.024 J	0.08 J	0.027 J
Chromium						5.5	5.5	4.9	14.3	11.9	5.2	3.5
Copper												
Nickel												
Zinc												
Arsenic						2.4	2.4	1.6	3.0	3.1	3.0	0.99 J
Lead		0.726				2.8 J	2.9 J	2.2 J	5.3 J	4.2 J	2.5 J	1.8 J
Mercury		ND				<0.0078	0.013 J	<0.0079	0.0092 J	0.021 J	<0.0075	<0.0078
Selenium						<0.24	<0.22	<26	<0.27	<0.23	<26	<26
Silver						<0.11	<0.1	<0.12	<0.12	<0.1	<0.12	<0.12
TRPH												
4,4-DDD	0.0912	0.0013	ND	ND	ND	<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
4,4-DDE	0.696	0.0012	ND	0.0078	ND	<0.00077	<0.00077	<0.00088	0.0011 J	<0.0008	<0.00087	<0.00086
4,4-DDT	0.707	0.0034	ND	0.01	ND	<0.0012	<0.0012	<0.0013	<0.0013	<0.0012	<0.0013	<0.0013
Aldrin						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Chlordane	0.0216 B	0.0028	ND	ND	ND							
alpha-Chlordane						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
gamma-Chlordane						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Endosulfan II						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Endosulfan sulfate						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Heptachlor	ND	ND	ND	ND	ND	<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Heptachlor epoxide						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
delta-BHC						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
gamma-BHC						<0.00077	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
1,1-Dichloroethene						<0.0019	<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Benzene						<0.0019	<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Chlorobenzene						<0.0019	<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Ethylbenzene						<0.0019	<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Methylene chloride						<0.0047	<0.0047	<0.0054	<0.007	<0.0054	<0.0064	<0.0062
Toluene						<0.0019	<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Diethyl phthalate						0.129 J	<0.098	<0.11	0.93	<0.099	0.15 J	<0.11

Notes:
All units are milligrams per kilogram (mg/kg)
ft bgs: feet below ground surface
B: Analyte detected in laboratory blank analysis
J: Detected below the detection limit, an estimated value is shown
P: Results of dual-column GC differ by < 25 %
ND: Not detected, but detection limit not known
Blank: Sample not analyzed or data not reported

Table 8-1(b)
Statistical Summary of All Soil Data
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemical	Total Number of Samples	Number of Detected Concentrations	Number of Non-Detected Concentrations	Detected Concentration		Detection Limit	
				Minimum	Maximum	Minimum	Maximum
				mg/kg			
Barium	7	7	0	59.9	114	NA	NA
Beryllium	12	7	5	0.34	0.71	0.38	0.45
Cadmium	27	11	16	0.024	3.71	0.37	1.1
Chromium	19	19	0	2.2	17	NA	NA
Copper	12	9	3	3.2	51	4	4.5
Nickel	12	9	3	4.9	14	4	4.5
Zinc	12	12	0	6.3	620	NA	NA
Arsenic	19	14	5	0.99	3.1	0.75	3.3
Lead	27	27	0	0.3	370	NA	NA
Mercury	27	9	18	0.0092	2.2	0.0075	0.064
Selenium	7	0	7	NA	NA	0.22	26
Silver	7	0	7	NA	NA	0.1	0.12
TRPH	12	8	4	16.4	9,950	11.5	13.61
4,4-DDD	43	24	19	0.00011	4	0.0006	0.00089
4,4-DDE	43	30	13	0.000055	5.6	0.0006	0.00088
4,4-DDT	43	30	13	0.00034	9.3	0.0012	0.0016
Aldrin	19	6	13	0.00045	0.041	0.00061	0.0056
Chlordane	36	24	12	0.0012	4	0.003	0.0039
alpha-Chlordane	7	0	7	NA	NA	0.00077	0.00089
gamma-Chlordane	7	0	7	NA	NA	0.00077	0.0009
Endosulfan II	19	1	18	0.0025	0.0025	0.00077	0.017
Endosulfan sulfate	19	5	14	0.00027	0.0023	0.00077	0.03
Heptachlor	43	15	28	0.0003	0.493	0.00061	0.0056
Heptachlor epoxide	19	5	14	0.0003	0.074	0.00061	0.01
delta-BHC	19	9	10	0.002	0.021	0.00061	0.01
gamma-BHC	19	1	18	0.00061	0.00061	0.00058	0.006
1,1-Dichloroethene	19	1	18	0.023	0.023	0.0019	0.1300
Benzene	19	1	18	0.0026	0.0026	0.0019	0.16
Chlorobenzene	19	4	15	0.0028	0.04	0.0019	0.16
Ethylbenzene	19	1	18	0.003	0.0026	0.0019	0.16
Methylene chloride	19	10	9	0.051	0.59	0.0047	0.13
Toluene	19	5	14	0.0055	0.0074	0.0019	0.13
Diethyl phthalate	7	3	4	0.13	0.93	0.098	0.110

Notes:
NA: Not applicable since detected values or detection limits were not available.
mg/Kg: Milligrams per kilogram

Table 8-1(c)
Comprehensive Groundwater Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-01							MW-08-02
Date	1991	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Nov-06	1991
Chloride	120							51
Sulfate	2,600							1,700
Fluoride	2.7							3.3
Nitrate-nitrite	<0.022							0.095
Total phosphorus	0.53							0.13
Arsenic	0.011	ND	ND	0.0316 BJ	0.0128	0.00934 J	0.0234	0.0051
Barium		ND	0.028	0.0169 BJ	0.0142	0.0165	0.0158 J	
Beryllium	0.0031							<0.002
Cadmium		ND	ND	0.0003 B			<0.0003	
Chromium	0.013	ND	ND	<0.0006			<0.0006	<0.01
Copper	0.031							<0.02
Iron		ND	5.9	6.62 J	6.5	7.805		
Lead	0.021	0.031	ND	<0.0015	<0.010		<0.0017	0.0058
Manganese		ND	2.6	3.72	2.69 J	2.98		
Mercury							0.00021 J	
Nickel	0.021							<0.02
Selenium		ND	ND	<0.0022			<0.056	
Silver		ND	ND	<0.0005			<0.0009	
Zinc	0.086							<0.02
4,4-DDD	<0.0000097	ND	ND	<0.0001			<0.000019	<0.00001
4,4-DDE	<0.0000097	ND	ND	<0.0001			<0.000019	<0.00001
Aldrin	<0.0000097						<0.000019	<0.00001
Chlordane	<0.000048							<0.00005
alpha-Chlordane							<0.000014	
gamma-Chlordane		ND	ND	0.000078 PJ			<0.000014	
Dieldrin	0.000017						<0.000014	<0.00001
Endosulfan I							<0.000014	
Endosulfan II							<0.000019	
Endosulfan sulfate		ND	ND	<0.0001			<0.000019	
Heptachlor	<0.0000097						<0.000019	<0.00001
Heptachlor epoxide	<0.0000097	ND	ND	<0.00005			<0.000014	<0.00001
alpha-BHC	0.000068						<0.000014	<0.00001
delta-BHC	0.0028						<0.000019	<0.00001
gamma-BHC	0.000066						<0.000014	<0.00001
1,2-Dichloroethane	<0.025	ND	0.13	0.13 D	<0.005	0.073	0.134	<0.005
1,2-Dichloropropane	0.0083 J	ND	0.0035	0.008			0.0103	<0.005
1,1,2-Trichloroethane							0.0039	
o-Dichlorobenzene							0.00052 J	
Acetone		ND	ND	<0.005			<0.005	
Benzene	10	ND	0.0037	0.002 J			0.00057 J	<0.005
Bromodichloromethane	<0.025	ND	ND	<0.003			<0.0005	0.00094 J
Bromoform		ND	ND	<0.003			<0.0005	
sec-Butylbenzene		ND	0.0023 J				<0.0005	
tert-Butylbenzene							0.00057 J	
Chloroform	<0.025	0.17	ND	<0.003			<0.0005	0.0041 J
Ethylbenzene	1.6	ND	0.0015	0.002 J			<0.0005	<0.005
Isopropylbenzene		ND	0.0015 J				<0.0005	
Methylene chloride	0.011 J						<0.001	0.0036 J
Methyl ethyl ketone							<0.0025	
Toluene	0.0077 J	ND	0.00086 J	<0.003			<0.0005	<0.005
Xylenes	0.019 J						<0.001	<0.005
Naphthalene	0.27	ND	0.0015 J				<0.001	ND
Diethyl phthalate							<0.002	
bis(2-Ethylhexyl)phthalate							<0.0025	

Table 8-1(c)
Comprehensive Groundwater Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-03							
Date	1991	1994	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05
Chloride	1,700							
Sulfate	3,800							
Fluoride	1.9							
Nitrate-nitrite	19							
Total phosphorus	0.15							
Arsenic	0.011		0.01	ND	0.0131 BJ	0.0105	0.0228	0.0083 J
Barium			ND	ND	0.0155 BJ	0.0112	0.012	0.0151 J
Beryllium	<0.002							
Cadmium			ND	ND	<0.0003			
Chromium	<0.01		ND	ND	0.0016 B			
Copper	<0.02							
Iron			ND	ND	<0.021	<1.0	0.0771 J	<3.8
Lead	<0.003		0.092	ND	<0.0015	<0.010		
Manganese			ND	ND	0.007 B	<0.010	0.0112	0.0209
Mercury								
Nickel	<0.02							
Selenium			ND	ND	0.0102 BJ			<0.096
Silver			ND	ND	0.0012 BJ			
Zinc	<0.02							
4,4-DDD	0.000033	0.000046	0.00002	ND	<0.0001			
4,4-DDE	0.000023	0.000099	0.00003	ND	<0.0001			
Aldrin	0.00018							
Chlordane	0.00044							
alpha-Chlordane								
gamma-Chlordane					<0.00005			
Dieldrin	0.00067							
Endosulfan I		0.000046						
Endosulfan II		0.000035						
Endosulfan sulfate			0.0001	ND	<0.0001			
Heptachlor	0.00015							
Heptachlor epoxide	0.0005	0.00016	ND	ND	<0.00005			
alpha-BHC	<0.0000097	<0.000013						
delta-BHC	0.000016	<0.000023						
gamma-BHC	0.00045	0.00001 J						
1,2-Dichloroethane	0.008		ND	ND	<0.003	<0.005	0.00069 J	ND
1,2-Dichloropropane	<0.005		ND	ND	<0.003			ND
1,1,2-Trichloroethane								
o-Dichlorobenzene								
Acetone			ND	ND	<0.005			ND
Benzene	0.00081 J		ND	0.0035	<0.003			ND
Bromodichloromethane	<0.005		ND	ND	<0.003			ND
Bromoform			ND	ND	<0.003			ND
sec-Butylbenzene			ND	ND				ND
tert-Butylbenzene								
Chloroform	0.0011 J		ND	0.00099 J	0.001 J			0.0015
Ethylbenzene	<0.005		ND	ND	<0.003			ND
Isopropylbenzene			ND	ND				ND
Methylene chloride	0.0028 J							
Methyl ethyl ketone								
Toluene	<0.005		ND	ND	<0.003			ND
Xylenes	<0.005							
Naphthalene	ND		ND	ND				ND
Diethyl phthalate								
bis(2-Ethylhexyl)phthalate								

Table 8-1(c)
Comprehensive Groundwater Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-04						
Date	1994	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05
Chloride							
Sulfate							
Fluoride							
Nitrate-nitrite							
Total phosphorus							
Arsenic		ND	ND	0.0077 BJ	0.0059 B	0.0111	0.0069 J
Barium		ND	0.022	0.018 BJ	0.0141	0.0123	0.0172 J
Beryllium							
Cadmium		ND	ND	<0.0003			
Chromium		ND	ND	<0.0006			
Copper							
Iron		ND	ND	<0.021	<1.0	<0.2	<1.5
Lead		0.082	ND	<0.0015	<0.010		
Manganese		ND	ND	0.0004 B	0.0449 J	0.00746 J	0.225
Mercury							
Nickel							
Selenium		ND	ND	0.0027 BJ			<0.048
Silver		ND	ND	<0.0005			
Zinc							
4,4-DDD	<0.000031	ND	ND	<0.0001			
4,4-DDE	<0.000052	ND	ND	<0.0001			
Aldrin							
Chlordane							
alpha-Chlordane							
gamma-Chlordane				<0.00005			
Dieldrin							
Endosulfan I	<0.000021						
Endosulfan II	<0.00001						
Endosulfan sulfate		ND	ND	<0.0001			
Heptachlor							
Heptachlor epoxide	<0.000013	ND	ND	<0.00005			
alpha-BHC	<0.000013						
delta-BHC	0.0000065 JB						
gamma-BHC	<0.000013						
1,2-Dichloroethane		ND	ND	<0.003	<0.005	<0.001	ND
1,2-Dichloropropane		ND	ND	<0.003			ND
1,1,2-Trichloroethane							
o-Dichlorobenzene							
Acetone		ND	ND	<0.005			ND
Benzene		ND	ND	<0.003			ND
Bromodichloromethane		ND	0.00061 J	<0.003			ND
Bromoform		ND	0.00084 J	<0.003			ND
sec-Butylbenzene		ND	ND				ND
tert-Butylbenzene							
Chloroform		0.0054	0.0022 J	<0.003			ND
Ethylbenzene		ND	ND	<0.003			ND
Isopropylbenzene		ND	ND				ND
Methylene chloride							
Methyl ethyl ketone							
Toluene		ND	ND	<0.003			ND
Xylenes							
Naphthalene		ND	ND				ND
Diethyl phthalate							
bis(2-Ethylhexyl)phthalate							

Table 8-1(c)
Comprehensive Groundwater Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-05							
Date	1994	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05	Nov-06
Chloride								
Sulfate								
Fluoride								
Nitrate-nitrite								
Total phosphorus								
Arsenic		ND	ND	0.0051 BJ	0.0043 B	<0.01	0.0071 J	0.0045 J
Barium		ND	0.025	0.0248 BJ	0.0261	0.0343	0.0412 J	0.0483 J
Beryllium								
Cadmium		ND	ND	<0.0003				<0.0003
Chromium		ND	ND	<0.0006				<0.0006
Copper								
Iron		ND	ND	<0.021	0.013 B	<0.2	0.824	
Lead		0.072	ND	<0.0015	<0.010			0.0029 J
Manganese		ND	0.26	0.235	0.0044 BJ	0.0213	0.255	
Mercury								0.00015 J
Nickel								
Selenium		ND	ND	0.0029 BJ			<0.096	<0.11
Silver		ND	ND	<0.0005				<0.0009
Zinc								
4,4-DDD	0.0000042 J	ND	ND	<0.0001				<0.00002
4,4-DDE	<0.000052	ND	ND	<0.0001				<0.00002
Aldrin								<0.00002
Chlordane								
alpha-Chlordane								<0.000015
gamma-Chlordane				<0.00005				<0.000015
Dieldrin								<0.000015
Endosulfan I	<0.000021							<0.000015
Endosulfan II	<0.00001							<0.00002
Endosulfan sulfate		ND	ND	<0.0001				<0.00002
Heptachlor								<0.00002
Heptachlor epoxide	0.000033	0.00004	ND	<0.00005				<0.000015
alpha-BHC	<0.000013							<0.000015
delta-BHC	<0.000023							<0.00002
gamma-BHC	<0.000013							<0.000015
1,2-Dichloroethane		0.0051	ND	<0.003	<0.005	<0.001	ND	<0.0005
1,2-Dichloropropane		ND	ND	<0.003			ND	<0.0005
1,1,2-Trichloroethane								<0.0005
o-Dichlorobenzene								<0.0005
Acetone		ND	ND	0.001 J			ND	<0.005
Benzene		ND	ND	<0.003			ND	<0.0005
Bromodichloromethane		ND	ND	<0.003			ND	<0.0005
Bromoform		ND	ND	<0.003			ND	<0.0005
sec-Butylbenzene		ND	ND				ND	<0.0005
tert-Butylbenzene								<0.0005
Chloroform		ND	ND	<0.003			ND	<0.0005
Ethylbenzene		ND	ND	<0.003			ND	<0.0005
Isopropylbenzene		ND	ND				ND	<0.0005
Methylene chloride								<0.001
Methyl ethyl ketone								0.0028 J
Toluene		ND	ND	<0.003			ND	<0.0005
Xylenes								<0.001
Naphthalene		ND	ND				ND	<0.001
Diethyl phthalate								<0.002
bis(2-Ethylhexyl)phthalate								0.0036 J

Table 8-1(c)
Comprehensive Groundwater Analytical Data Showing Chemicals Detected in at Least One Sample
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-06		SD08-MW08-07	SD08-MW08-08	SD08-MW08-08D (Duplicate)	HSTE-10	S10-MW01
Date	1994	Dec-05	Dec-06	Nov-06	Nov-06	1994	Nov-06
Chloride							
Sulfate							
Fluoride							
Nitrate-nitrite							
Total phosphorus							
Arsenic			0.0048 J	0.0074 J	0.006 J		0.0076 J
Barium			0.028 J	0.0411 J	0.046 J		0.0208 J
Beryllium							
Cadmium			<0.001	<0.0003	0.00043 J		0.0016 J
Chromium			0.0007 J	0.00068 J	<0.0006		0.0038 J
Copper							
Iron							
Lead			0.0018 J	<0.0017	<0.0017		<0.0017
Manganese							
Mercury			<0.0001	<0.0001	<0.0001		0.00022 J
Nickel							
Selenium			<0.0028	<0.11	<0.11		<0.056
Silver			0.0011 J	<0.0009	<0.0009		<0.0009
Zinc							
4,4-DDD	<0.000031		<0.000019	<0.00002	<0.00002	0.000014 J	<0.00002
4,4-DDE	<0.000052		<0.000019	<0.00002	<0.00002	<0.000052	<0.00002
Aldrin			<0.000019	<0.00002	<0.00002		<0.00002
Chlordane							
alpha-Chlordane			0.000016 J	<0.000015	<0.000015		<0.000015
gamma-Chlordane			0.00003 J	<0.000015	<0.000015		<0.000015
Dieldrin			<0.000015	<0.000015	<0.000015		<0.000015
Endosulfan I	<0.000021		<0.000015	<0.000015	<0.000015	<0.000021	<0.000015
Endosulfan II	<0.00001		<0.000019	<0.00002	<0.00002	<0.00001	<0.00002
Endosulfan sulfate			<0.000019	<0.00002	<0.00002		<0.00002
Heptachlor			<0.000019	<0.00002	<0.00002		<0.00002
Heptachlor epoxide	<0.000013		<0.000015	<0.000015	<0.000015	<0.000013	<0.000015
alpha-BHC	<0.000013		<0.000015	<0.000015	<0.000015	<0.000013	<0.000015
delta-BHC	0.000003 JB		<0.000019	<0.00002	<0.00002	0.0000051 JB	<0.00002
gamma-BHC	<0.000013		<0.000015	<0.000015	<0.000015	<0.000013	<0.000015
1,2-Dichloroethane			0.0547	<0.0005	<0.0005		0.003
1,2-Dichloropropane			0.0016	<0.0005	<0.0005		<0.0005
1,1,2-Trichloroethane			<0.0005	<0.0005	<0.0005		<0.0005
o-Dichlorobenzene			<0.0005	<0.0005	<0.0005		<0.0005
Acetone			<0.005	<0.005	<0.005		0.0095 J
Benzene			<0.0005	<0.0005	<0.0005		<0.0005
Bromodichloromethane			<0.0005	<0.0005	<0.0005		<0.0005
Bromoform			<0.0005	<0.0005	<0.0005		<0.0005
sec-Butylbenzene			<0.0005	<0.0005	<0.0005		<0.0005
tert-Butylbenzene			<0.0005	<0.0005	<0.0005		<0.0005
Chloroform			<0.0005	0.00051 J	<0.0005		<0.0005
Ethylbenzene			<0.0005	<0.0005	<0.0005		<0.0005
Isopropylbenzene			<0.0005	<0.0005	<0.0005		<0.0005
Methylene chloride			<0.001	<0.001	<0.001		<0.001
Methyl ethyl ketone			<0.0025	<0.0025	<0.0025		<0.0025
Toluene			<0.0005	<0.0005	<0.0005		<0.0005
Xylenes			<0.001	<0.001	<0.001		<0.001
Naphthalene			<0.001	<0.001	<0.001		<0.001
Diethyl phthalate			0.0111	<0.002	<0.002		<0.002
bis(2-Ethylhexyl)phthalate			<0.0025	<0.0025	<0.0025		<0.0025

Notes:
Units are in milligrams per liter (mg/L)
B: Analyte detected in laboratory blank analysis
D: Value derived from analysis of diluted sample
J: Detected below the detection limit, an estimated value is shown
ND: Not detected, but detection limit not known
P: Results of dual-column gas chromatograph technique differs by more than 25%
Blank: Sample not analyzed or data not reported

Table 8-1(d)
Statistical Summary of All Groundwater Data
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemical	Total Number of Samples	Number of Detected Concentrations	Number of Non-Detected Concentrations	Detected Concentration		Detection Limit	
				Minimum	Maximum	Minimum	Maximum
				mg/L			
Chloride	3	3	0	51	1,700	NA	NA
Sulfate	3	3	0	1,700	3,800	NA	NA
Fluoride	3	3	0	1.9	3.3	NA	NA
Nitrate-nitrite	3	2	1	0.095	19	0.022	0.022
Total phosphorus	3	3	0	0.13	0.53	NA	NA
Arsenic	32	24	8	0.0043	0.0316	0.01	0.01
Barium	29	24	5	0.0112	0.0483	NA	NA
Beryllium	3	1	2	0.0031	0.0031	0.002	0.002
Cadmium	18	3	15	0.0003	0.0016	0.0003	0.001
Chromium	21	5	16	0.00068	0.013	0.0006	0.01
Copper	3	1	2	0.031	0.031	0.02	0.02
Iron	23	7	16	0.013	7.805	0.021	3.8
Lead	25	8	17	0.0018	0.092	0.0015	0.01
Manganese	23	16	7	0.0004	3.72	0.01	0.01
Mercury	6	3	3	0.00015	0.00022	0.0001	0.0001
Nickel	3	1	2	0.021	0.021	0.02	0.02
Selenium	21	3	18	0.0027	0.0102	0.0022	0.11
Silver	18	2	16	0.0011	0.0012	0.0005	0.0009
Zinc	3	1	2	0.086	0.086	0.02	0.02
4,4-DDD	26	5	21	0.0000042	0.000046	0.0000097	0.0001
4,4-DDE	26	3	23	0.000023	0.000099	0.0000097	0.0001
Aldrin	9	1	8	0.00018	0.00018	0.0000097	0.00002
Chlordane	3	1	2	0.00044	0.00044	0.000048	0.00005
alpha-Chlordane	6	1	5	0.000016	0.000016	0.000014	0.000015
gamma-Chlordane	12	2	10	0.00003	0.000078	0.000014	0.00005
Dieldrin	9	2	7	0.000017	0.00067	0.00001	0.000015
Endosulfan I	11	1	10	0.000046	0.000046	0.000014	0.000021
Endosulfan II	11	1	10	0.000035	0.000035	0.00001	0.00002
Endosulfan sulfate	18	1	17	0.0001	0.0001	0.000019	0.0001
Heptachlor	9	1	8	0.00015	0.00015	0.0000097	0.00002
Heptachlor epoxide	26	4	22	0.000033	0.0005	0.0000097	0.00005
alpha-BHC	14	1	13	0.000068	0.000068	0.0000097	0.000015
delta-BHC	14	5	9	0.000003	0.0028	0.00001	0.000023
gamma-BHC	14	3	11	0.00001	0.00045	0.00001	0.000015

Table 8-1(d)
Statistical Summary of All Groundwater Data
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemical	Total Number of Samples	Number of Detected Concentrations	Number of Non-Detected Concentrations	Detected Concentration		Detection Limit	
				Minimum	Maximum	Minimum	Maximum
				mg/L			
1,2-Dichloroethane	32	8	24	0.00069	0.134	0.0005	0.025
1,2-Dichloropropane	24	5	19	0.0016	0.0103	0.0005	0.005
1,1,2-Trichloroethane	6	1	5	0.0039	0.0039	0.0005	0.0005
o-Dichlorobenzene	6	1	5	0.00052	0.00052	0.0005	0.0005
Acetone	21	2	19	0.001	0.0095	0.005	0.005
Benzene	24	6	18	0.00057	10	0.0005	0.005
Bromodichloromethane	24	2	22	0.00061	0.00094	0.0005	0.025
Bromoform	21	1	20	0.00084	0.00084	0.0005	0.003
sec-Butylbenzene	17	1	16	0.0023	0.0023	0.0005	0.0005
tert-Butylbenzene	6	1	5	0.00057	0.00057	0.0005	0.0005
Chloroform	24	9	15	0.00051	0.17	0.0005	0.025
Ethylbenzene	24	3	21	0.0015	1.6	0.0005	0.005
Isopropylbenzene	17	1	16	0.0015	0.0015	0.0005	0.0005
Methylene chloride	9	3	6	0.0028	0.011	0.001	0.001
Methyl ethyl ketone	6	1	5	0.0028	0.0028	0.0025	0.0025
Toluene	24	2	22	0.00086	0.0077	0.0005	0.005
Xylenes	9	1	8	0.019	0.019	0.001	0.005
Naphthalene	20	2	18	0.0015	0.27	0.001	0.001
Diethyl phthalate	6	1	5	0.011	0.011	0.002	0.002
bis(2-Ethylhexyl)phthalate	6	1	5	0.0036	0.0036	0.0025	0.0025

Notes:

NA: Not applicable since detected values or detection limits were not available.

mg/L: milligrams per liter

Table 8-1(e)
Groundwater Monitoring Well Construction Information
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Well ID	Installation Date	Diameter (inches)	Total Depth (feet)	Screened Interval (ft bgs - ft bgs)
MW-08-01	08/07/91	2	23.3	10.2 - 19.7
MW-08-02	08/08/91	2	18.9	6.7 - 16.7
MW-08-03	--	--	--	--
MW-08-04	11/08/94	2	16.5	6.1 - 16.1
MW-08-05	11/08/94	2	16.6	6.2 - 16.2
MW-08-06	11/08/94	2	16.5	6.1 - 16.1
MW-08-07	10/27/06	2	16.75	6.5 - 16.5
MW-08-08	10/27/06	2	16.75	6.5 - 16.5

Note:
ft AMSL: feet above mean sea level --: Not available
ft TOC: feet below top of casing ft bgs: feet below ground surface

Table 8-2(a)
Soil Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-01		SB-08-02		SB-08-03		SB-08-04		SB-08-05		SB-08-06		SB-08-07	SB-08-08	SB-08-09
Depth (ft bgs)	0 - 2	6 - 8	0 - 2	5 - 7	0 - 2	10 - 12	0 - 2	2 - 4	2 - 4	6 - 8	2.5 - 4.5	7.5 - 9.5	0 - 2	0 - 2	0 - 2
Date	1991		1991		1991		1991		1991		1991		1993	1993	1993
Barium															
Beryllium	0.39	<0.45	0.36	0.43	0.34	<0.4	0.44	<0.38	0.45	<0.42	0.71	<0.40			
Cadmium	0.92	<1.1	1.8	<0.37	<0.78	<1.0	<0.77	<0.95	<0.80	<1.0	0.92	<1.0	ND		
Chromium	13	6	17	11	8.9	2.2	15	8.2	9.7	4	7.9	6.4			
Copper	51	<4.5	37	5.8	10	<4.0	20	7	3.2	<4.2	5.2	4.2			
Nickel	10	<4.5	9.3	6.1	6.8	<4.0	14	7.1	7	<4.2	6.8	4.9			
Zinc	180	12	620	21	48	6.3	50	30	23	9.6	16	11			
Arsenic	<1.3	<0.75	<3.3	1.6	<1.3	<0.76	1.8	1.5	2.1	1.1	3	1.1			
Lead	50	1.1	370	2.3	19	0.3	8.1	18	2	0.75	1	1.3	9.22		
Mercury	0.49	<0.06	2.2	<0.053	0.11	<0.064	0.8	<0.053	<0.053	<0.06	<0.056	<0.06	ND		
Selenium															
Silver															
TRPH	87.4	24.6	1,320	<11.5	1,740	<13.61	9,950	35.8	191	16.4	<12.3	<13.6			
4,4-DDD	0.11	<0.0006	4	0.001	0.028	<0.00079	0.23	<0.00061	0.00011 J	<0.00068	0.0032	0.004	0.0564	0.0094	0.0034
4,4-DDE	0.41	<0.0006	5.6	0.01	0.086	<0.00079	0.53	0.0033	0.001	<0.00068	0.000055 J	0.00076	0.0521	0.0081	0.009
4,4-DDT	0.4	<0.0012	9.3	0.012	0.026	<0.0016	0.5	0.001 J	0.00034 J	<0.0014	0.0013	0.002	0.0467	0.0056	0.0083
Aldrin	<0.0056	0.00049 J	0.041	0.00049 J	<0.0056	0.00045 J	0.005 J	<0.00061	<0.00061	<0.00068	<0.00061	0.0017			
Chlordane	0.95	<0.003	4	0.02	0.23	<0.0039	0.73	<0.0031	<0.003	<0.0034	0.017	0.032	0.0895 B	0.0859	0.0036
alpha-Chlordane															
gamma-Chlordane															
Endosulfan II	0.0025 J	<0.0018	<0.017	<0.0017	<0.017	<0.0024	<0.016	<0.0018	<0.0018	<0.0021	<0.0018	<0.0019			
Endosulfan sulfate	<0.028	0.0011 J	<0.028	0.00027 J	<0.028	0.00064 J	0.00068 J	<0.0031	<0.003	<0.0034	0.0023 JB	<0.0031			
Heptachlor	0.0063	0.00031 J	0.056	0.0009	<0.0056	0.00087	0.012	0.0003 J	0.00039 J	<0.00068	<0.00061	<0.00063	0.0041	0.0033	ND
Heptachlor epoxide	0.011	0.0003 J	0.074	0.0044	<0.0056	<0.00079	0.012	<0.00061	<0.00061	<0.00068	<0.00061	<0.00063			
delta-BHC	0.016	0.0016	0.021	0.0016	0.015	0.0021	<0.0055	0.0018	<0.00061	<0.00068	0.0018	0.0017			
gamma-BHC	<0.0056	0.00061	<0.0056	<0.00058	<0.0056	<0.00079	<0.0055	<0.00061	<0.00061	<0.00068	<0.00061	<0.00063			
1,1-Dichloroethene	<0.11	<0.12	<0.11	<0.12	<0.11	0.023 J	<0.11	<0.12	<0.12	<0.13	<0.12	<0.13			
Benzene	<0.11	<0.12	<0.11	<0.12	<0.11	<0.16	0.0026 J	<0.12	<0.12	<0.13	<0.12	<0.13			
Chlorobenzene	0.04 J	0.0028 J	0.015 J	<0.12	0.0056 J	<0.16	<0.11	<0.12	<0.12	<0.13	<0.12	<0.13			
Ethylbenzene	<0.11	<0.12	<0.11	<0.12	<0.11	<0.16	0.0026 J	<0.12	<0.12	<0.13	<0.12	<0.13			
Methylene chloride	0.15 B	0.051 JB	0.41 B	0.38 B	0.15 B	0.47 B	0.59 B	0.32 B	<0.12	<0.13	0.17 B	0.57 B			
Toluene	0.0057 J	<0.12	0.0074 J	0.0055 J	0.006 J	0.0071 J	<0.11	<0.12	<0.12	<0.13	<0.12	<0.13			
Diethyl phthalate															

Table 8-2(a)
Soil Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-10	SB-08-10	SB-08-11		SB-08-12		SB-08-13		SB-08-13	SB-08-14		SB-08-15		SB-08-16
Depth (ft bgs)	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6	0 - 2	2 - 4	0 - 2
Date	1993	1993	1993		1993		1993		1993	1993		1993		1993
Barium														
Beryllium														
Cadmium	3.71		ND			ND		ND		ND				
Chromium														
Copper														
Nickel														
Zinc														
Arsenic														
Lead	69.9		10.6			2.8		9.11		7.25				
Mercury	0.297		0.068			ND		ND		ND				
Selenium														
Silver														
TRPH														
4,4-DDD	0.116	0.0015	0.021	ND	0.065 P	ND	0.492	0.0018 P	0.0049	ND	0.001	0.0017	0.0019	0.0015
4,4-DDE	0.0884	0.0014	0.0233	ND	1.85	0.012	2.5	0.0018	0.0121	0.0029	0.0059	0.0061	0.004	0.0102
4,4-DDT	0.0825	0.0026	0.0206	ND	2.74	0.0079	4.21	0.0156	0.0184	0.0037	0.006	0.0035	0.004	0.0081
Aldrin														
Chlordane	0.263 B	0.0029 B	0.0577 B	0.238	0.0511 B	ND	0.386	0.0234	0.0018	0.0012	0.0029	0.0034	0.0022	ND
alpha-Chlordane														
gamma-Chlordane														
Endosulfan II														
Endosulfan sulfate														
Heptachlor	0.0089 P	ND	0.493	0.343	ND	ND	0.0078	0.0025	ND	ND	ND	ND	ND	ND
Heptachlor epoxide														
delta-BHC														
gamma-BHC														
1,1-Dichloroethene														
Benzene														
Chlorobenzene														
Ethylbenzene														
Methylene chloride														
Toluene														
Diethyl phthalate														

Table 8-2(a)
Soil Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-17		SB-08-18	SB-08-19		SB-08-20		SD-08-SB21 (Avg)	SD-08-SB21	SD-08-SB22		SD-08-SB23	
Depth (ft bgs)	0 - 2	2 - 4	0 - 2	0 - 2	2 - 4	0 - 2	2 - 4	2	6	2	7	4	7
Date	1993		1993	1993		1993		Oct-06		Oct-06		Oct-06	
Barium								61.8	79.5	114.0	87.2	75.9	60.1
Beryllium													
Cadmium	ND			ND				0.035	0.057 J	0.13 J	0.024 J	0.08 J	0.027 J
Chromium								5.5	4.9	14.3	11.9	5.2	3.5
Copper													
Nickel													
Zinc													
Arsenic								2.4	1.6	3.0	3.1	3.0	0.99 J
Lead	7.44			0.726				2.9	2.2 J	5.3 J	4.2 J	2.5 J	1.8 J
Mercury	ND			ND				0.0085	<0.0079	0.0092 J	0.021 J	<0.0075	<0.0078
Selenium								<0.24	<26	<0.27	<0.23	<26	<26
Silver								<0.11	<0.12	<0.12	<0.1	<0.12	<0.12
TRPH													
4,4-DDD	ND	ND	0.0912	0.0013	ND	ND	ND	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
4,4-DDE	0.106	0.0089	0.696	0.0012	ND	0.0078	ND	<0.00077	<0.00088	0.0011 J	<0.0008	<0.00087	<0.00086
4,4-DDT	0.0296	0.0044	0.707	0.0034	ND	0.01	ND	<0.0012	<0.0013	<0.0013	<0.0012	<0.0013	<0.0013
Aldrin								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Chlordane	ND	ND	0.0216 B	0.0028	ND	ND	ND						
alpha-Chlordane								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
gamma-Chlordane								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Endosulfan II								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Endosulfan sulfate								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Heptachlor	ND	ND	ND	ND	ND	ND	ND	<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
Heptachlor epoxide								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
delta-BHC								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
gamma-BHC								<0.00077	<0.00088	<0.00089	<0.0008	<0.00087	<0.00086
1,1-Dichloroethene								<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Benzene								<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Chlorobenzene								<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Ethylbenzene								<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Methylene chloride								<0.0047	<0.0054	<0.007	<0.0054	<0.0064	<0.0062
Toluene								<0.0019	<0.0024	<0.0028	<0.0022	<0.0026	<0.0025
Diethyl phthalate								0.089	<0.11	0.93	<0.099	0.15 J	<0.11

Notes:
All units are milligrams per kilogram (mg/kg)
ft bgs: feet below ground surface
B: Analyte detected in laboratory blank analysis
J: Detected below the detection limit, an estimated value is shown
P: Results of dual-column GC differ by < 25 %
ND: Not detected, but detection limit not known
Blank: Sample not analyzed or data not reported

Table 8-2(b)
Statistical Summary of Soil Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemical	Total Number of Samples	Number of Detected Concentrations	Number of Non-Detected Concentrations	Detected Concentration		Detection Limit	
				Minimum	Maximum	Minimum	Maximum
				mg/kg			
Barium	6	6	0	60.1	114	NA	NA
Beryllium	12	7	5	0.34	0.71	0.38	0.45
Cadmium	26	10	16	0.024	3.71	0.37	1.1
Chromium	18	18	0	2.2	17	NA	NA
Copper	12	9	3	3.2	51	4	4.5
Nickel	12	9	3	4.9	14	4	4.5
Zinc	12	12	0	6.3	620	NA	NA
Arsenic	18	13	5	0.99	3.1	0.75	3.3
Lead	26	26	0	0.3	370	NA	NA
Mercury	26	9	17	0.00845	2.2	0.0075	0.064
Selenium	6	0	6	NA	NA	0.23	26
Silver	6	0	6	NA	NA	0.1	0.12
TRPH	12	8	4	16.4	9,950	11.5	13.61
4,4-DDD	42	24	18	0.00011	4	0.0006	0.00089
4,4-DDE	42	30	12	0.000055	5.6	0.0006	0.00088
4,4-DDT	42	30	12	0.00034	9.3	0.0012	0.0016
Aldrin	18	6	12	0.00045	0.041	0.00061	0.0056
Chlordane	36	24	12	0.0012	4	0.003	0.0039
alpha-Chlordane	6	0	6	NA	NA	0.00077	0.00089
gamma-Chlordane	6	0	6	NA	NA	0.00077	0.0009
Endosulfan II	18	1	17	0.0025	0.0025	0.00077	0.017
Endosulfan sulfate	18	5	13	0.00027	0.0023	0.00077	0.03
Heptachlor	42	15	27	0.0003	0.493	0.00061	0.0056
Heptachlor epoxide	18	5	13	0.0003	0.074	0.00061	0.01
delta-BHC	18	9	9	0.002	0.021	0.00061	0.01
gamma-BHC	18	1	17	0.00061	0.00061	0.00058	0.006
1,1-Dichloroethene	18	1	17	0.023	0.023	0.0019	0.1300
Benzene	18	1	17	0.0026	0.0026	0.0019	0.16
Chlorobenzene	18	4	14	0.0028	0.04	0.0019	0.16
Ethylbenzene	18	1	17	0.0026	0.0026	0.0019	0.16
Methylene chloride	18	10	8	0.05	0.59	0.0047	0.13
Toluene	18	5	13	0.006	0.0074	0.0019	0.13
Diethyl phthalate	6	3	3	0.089	0.93	0.099	0.110

Notes:
NA: Not applicable since detected values or detection limits were not available.
mg/kg: milligrams per kilogram

Table 8-2(c)
Groundwater Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-01		MW-08-03		MW-08-04		MW-08-05			MW-08-06	SD08-MW08-07	SD08-MW-08-08 (Avg)	S10-MW01
Date	Apr-03	Nov-06	Apr-03	Dec-05	Apr-03	Dec-05	Apr-03	Dec-05	Nov-06	Dec-05	Dec-06	Nov-06	Nov-06
Arsenic	0.00934 J	0.0234	0.0228	0.0083 J	0.0111	0.0069 J	<0.01	0.0071 J	0.0045 J		0.0048 J	0.0067	0.0076 J
Barium	0.0165	0.0158 J	0.012	0.0151 J	0.0123	0.0172 J	0.0343	0.0412 J	0.0483 J		0.028 J	0.04355	0.0208 J
Cadmium		<0.0003							<0.0003		<0.001	0.00029	0.0016 J
Chromium		<0.0006							<0.0006		0.0007 J	0.00049	0.0038 J
Iron	7.805		0.0771 J	<3.8	<0.2	<1.5	<0.2	0.824					
Lead		<0.0017							0.0029 J		0.0018 J	<0.0017	<0.0017
Manganese	2.98		0.0112	0.0209	0.00746 J	0.225	0.0213	0.255					
Mercury		0.00021 J							0.00015 J		<0.0001	<0.0001	0.00022 J
Selenium		<0.056		<0.096		<0.048		<0.096	<0.11		<0.0028	<0.11	<0.056
Silver		<0.0009							<0.0009		0.0011 J	<0.0009	<0.0009
4,4-DDD		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
4,4-DDE		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
Aldrin		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
alpha-Chlordane		<0.000014							<0.000015		0.000016 J	<0.000015	<0.000015
gamma-Chlordane		<0.000014							<0.000015		0.00003 J	<0.000015	<0.000015
Dieldrin		<0.000014							<0.000015		<0.000015	<0.000015	<0.000015
Endosulfan I		<0.000014							<0.000015		<0.000015	<0.000015	<0.000015
Endosulfan II		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
Endosulfan sulfate		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
Heptachlor		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
Heptachlor epoxide		<0.000014							<0.000015		<0.000015	<0.000015	<0.000015
alpha-BHC		<0.000014							<0.000015		<0.000015	<0.000015	<0.000015
delta-BHC		<0.000019							<0.00002		<0.000019	<0.00002	<0.00002
gamma-BHC		<0.000014							<0.000015		<0.000015	<0.000015	<0.000015
1,2-Dichloroethane	0.073	0.134	0.00069 J	ND	<0.001	ND	<0.001	ND	<0.0005		0.0547	<0.0005	0.003
1,2-Dichloropropane		0.0103		ND		ND		ND	<0.0005		0.0016	<0.0005	<0.0005
1,1,2-Trichloroethane		0.0039							<0.0005		<0.0005	<0.0005	<0.0005
o-Dichlorobenzene		0.00052 J							<0.0005		<0.0005	<0.0005	<0.0005
Acetone		<0.005		ND		ND		ND	<0.005		<0.005	<0.005	0.0095 J
Benzene		0.00057 J		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
Bromodichloromethane		<0.0005		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
Bromoform		<0.0005		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
sec-Butylbenzene		<0.0005		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
tert-Butylbenzene		0.00057 J							<0.0005		<0.0005	<0.0005	<0.0005
Chloroform		<0.0005		0.0015		ND		ND	<0.0005		<0.0005	0.00038	<0.0005
Ethylbenzene		<0.0005		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
Isopropylbenzene		<0.0005		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
Methylene chloride		<0.001							<0.001		<0.001	<0.001	<0.001
Methyl ethyl ketone		<0.0025							0.0028 J		<0.0025	<0.0025	<0.0025
Toluene		<0.0005		ND		ND		ND	<0.0005		<0.0005	<0.0005	<0.0005
Xylenes		<0.001							<0.001		<0.001	<0.001	<0.001
Naphthalene		<0.001		ND		ND		ND	<0.001		<0.001	<0.001	<0.001
Diethyl phthalate		<0.002							<0.002		0.0111	<0.002	<0.002
bis(2-Ethylhexyl)phthalate		<0.0025							0.0036 J		<0.0025	<0.0025	<0.0025

Notes:
Units are in milligrams per liter (mg/L)
J: Detected below the detection limit. An estimated value shown
ND: Not detected, but detection limit not known
Blank: Sample not analyzed or data not reported

Table 8-2(d)
Statistical Summary of Groundwater Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemical	Total Number of Samples	Number of Detected Concentrations	Number of Non-Detected Concentrations	Detected Concentration		Detection Limit	
				Minimum	Maximum	Minimum	Maximum
				mg/L			
Arsenic	12	11	1	0.0045	0.0234	0.01	0.01
Barium	12	12	0	0.012	0.0483	NA	NA
Cadmium	5	2	3	0.00029	0.0016	0.0003	0.001
Chromium	5	3	2	0.00049	0.0038	0.0006	0.0006
Iron	7	3	4	0.0771	7.805	0.2	3.8
Lead	5	2	3	0.0018	0.0029	0.0017	0.0017
Manganese	7	7	0	0.00746	2.98	NA	NA
Mercury	5	3	2	0.00015	0.00022	0.0001	0.0001
Selenium	8	0	8	NA	NA	0.0028	0.11
Silver	5	1	4	0.0011	0.0011	0.0009	0.0009
4,4-DDD	5	0	5	NA	NA	0.000019	0.00002
4,4-DDE	5	0	5	NA	NA	0.000019	0.00002
Aldrin	5	0	5	NA	NA	0.000019	0.00002
alpha-Chlordane	5	1	4	0.000016	0.000016	0.000014	0.000015
gamma-Chlordane	5	1	4	0.00003	0.00003	0.000014	0.000015
Dieldrin	5	0	5	NA	NA	0.000014	0.000015
Endosulfan I	5	0	5	NA	NA	0.000014	0.000015
Endosulfan II	5	0	5	NA	NA	0.000019	0.00002
Endosulfan sulfate	5	0	5	NA	NA	0.000019	0.00002
Heptachlor	5	0	5	NA	NA	0.000019	0.00002
Heptachlor epoxide	5	0	5	NA	NA	0.000014	0.000015
alpha-BHC	5	0	5	NA	NA	0.000014	0.000015
delta-BHC	5	0	5	NA	NA	0.000019	0.00002
gamma-BHC	5	0	5	NA	NA	0.000014	0.000015

Table 8-2(d)
Statistical Summary of Groundwater Data Used for Risk Assessment
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemical	Total Number of Samples	Number of Detected Concentrations	Number of Non-Detected Concentrations	Detected Concentration		Detection Limit	
				Minimum	Maximum	Minimum	Maximum
				mg/L			
1,2-Dichloroethane	12	5	7	0.00069	0.134	0.0005	0.001
1,2-Dichloropropane	8	2	6	0.0016	0.0103	0.0005	0.0005
1,1,2-Trichloroethane	5	1	4	0.0039	0.0039	0.0005	0.0005
o-Dichlorobenzene	5	1	4	0.00052	0.00052	0.0005	0.0005
Acetone	8	1	7	0.0095	0.0095	0.005	0.005
Benzene	8	1	7	0.00057	0.00057	0.0005	0.0005
Bromodichloromethane	8	0	8	NA	NA	0.0005	0.0005
Bromoform	8	0	8	NA	NA	0.0005	0.0005
sec-Butylbenzene	8	0	8	NA	NA	0.0005	0.0005
tert-Butylbenzene	5	1	4	0.00057	0.00057	0.0005	0.0005
Chloroform	8	2	6	0.00038	0.0015	0.0005	0.0005
Ethylbenzene	8	0	8	NA	NA	0.0005	0.0005
Isopropylbenzene	8	0	8	NA	NA	0.0005	0.0005
Methylene chloride	5	0	5	NA	NA	0.001	0.001
Methyl ethyl ketone	5	1	4	0.0028	0.0028	0.0025	0.0025
Toluene	8	0	8	NA	NA	0.0005	0.0005
Xylenes	5	0	5	NA	NA	0.001	0.001
Naphthalene	8	0	8	NA	NA	0.001	0.001
Diethyl phthalate	5	1	4	0.011	0.011	0.002	0.002
bis(2-Ethylhexyl)phthalate	5	1	4	0.0036	0.0036	0.0025	0.0025

Notes:

NA: Not applicable since sample was not analyzed or detected values or detection limits were not available.

mg/L: milligrams per liter

Table 8-3
Chemicals of Potential Concern
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Chemicals	Soil	Groundwater
Arsenic	D	D
Barium	D	D
Beryllium	D	NA
Cadmium	D	D
Chromium	D	D
Copper	D	NA
Lead	D	D
Manganese	NA	D
Mercury	D	D
Nickel	D	NA
Silver	ND	D
Zinc	D	NA
TRPH	D	NA
4,4-DDD	D	ND
4,4-DDE	D	ND
4,4-DDT	D	ND
Aldrin	D	ND
Chlordane	D	NA
alpha-Chlordane	ND	D
gamma-Chlordane	ND	D
Endosulfan II	D	ND
Endosulfan sulfate	D	ND
Heptachlor	D	ND
Heptachlor epoxide	D	ND
delta-BHC	D	ND
gamma-BHC	D	ND
1,1-Dichloroethene	D	ND
1,2-Dichloroethane	ND	D
1,2-Dichloropropane	ND	D
1,1,2-Trichloroethane	ND	D
o-Dichlorobenzene	ND	D
Acetone	ND	D
Benzene	D	D
tert-Butylbenzene	ND	D
Chlorobenzene	D	ND
Chloroform	ND	D
Ethylbenzene	D	ND
Methylene chloride	D	ND
Methyl ethyl ketone	ND	D
Toluene	D	ND
Diethyl phthalate	D	D
bie(2-Ethylhexyl)phthalate	ND	D
Total Detected	**29**	**21**

Notes:
D: Detected at least once
ND: Not Detected
NA: Not Analyzed

Table 8-4(a)
Exposure Model for Future Resident
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

No.	Route of Exposure	C/NC	Justification
1	**Dermal contact with surficial soil**	**C**	**Surficial soil has been impacted. Therefore, this exposure pathway is complete.**
2	**Ingestion of surficial soil**	**C**	**Surficial soil has been impacted. Therefore, this exposure pathway is complete.**
3	**Outdoor inhalation of vapors or particulates from surficial soil**	**C**	**Vapors from surficial soil may migrate upwards through the ground surface and into the ambient air. Therefore, this exposure pathway is complete.**
4	**Indoor inhalation of vapors from subsurface soil**	**C**	**Subsurface soil has been impacted and a residential building may be constructed over the area where subsurface soil is impacted. Therefore, this exposure pathway is complete.**
5	Outdoor inhalation of vapors from subsurface soil	C	Vapors from subsurface soil may migrate upwards through the vadose zone and into the ambient air through cracks in the pavement. Note this pathway is generally not the "risk driver" (due to considerable mixing and dilution in ambient air) especially when indoor intrusion is considered.
6	**Indoor inhalation of vapors from groundwater**	**C**	**A residential building may be constructed over an area where impacted groundwater exists. Therefore, this pathway is complete.**
7	Outdoor inhalation of vapors from groundwater	C	Vapors from groundwater may migrate upwards through the capillary fringe, the vadose zone, and into the ambient air through the ground surface. Note this pathway is generally not the "risk driver" (due to considerable mixing and dilution in ambient air) especially when indoor intrusion is considered.
8	Ingestion of groundwater	NC	The facility receives water from Lake Bonito. Therefore, this exposure pathway is not complete. Also refer to Section 8.3.2 of the RFI report.
9	Dermal contact with groundwater	NC	The facility receives water from the Lake Bonito. Therefore, this exposure pathway is not complete.

Notes:
C: Complete
NC: Not complete
Pathways shown in bold will be quantitatively evaluated.
Surficial soil is assumed to be soil in 0 – 2 feet below ground surface (ft bgs).
Subsurface soil is assumed to be soil between 2 ft bgs and the groundwater table.

Table 8-4(b)
Exposure Model for Future Construction Worker
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

No.	Route of Exposure	C/NC	Justification
1	**Dermal contact with soil to depth of construction**	**C**	**Soil is impacted at the site. Therefore, this pathway is complete.**
2	**Ingestion of soil to depth of construction**	**C**	**Soil is impacted at the site. Therefore, this pathway is complete.**
3	**Outdoor inhalation of vapors or particulates from soil to depth of construction**	**C**	**Soil is impacted at the site. Therefore, this pathway is complete.**
4	Indoor inhalation of vapors from soil	NC	Typically construction would not be expected to occur indoors over an extended period of time. Therefore, this pathway is not complete.
5	Indoor inhalation of vapors from groundwater	NC	Typically construction would not be expected to occur indoors over an extended period of time. Therefore, this pathway is not complete.
6	**Dermal contact with groundwater**	**C**	**Depth to groundwater fluctuates between 8 to 10 feet below ground surface which is within the anticipated depth of construction. Therefore, this pathway is complete.**
7	**Inhalation of vapors from groundwater**	**C**	**Depth to groundwater fluctuates between 8 to 10 feet below ground surface which is within the anticipated depth of construction. Therefore, this pathway is complete.**

Notes:
C: Complete
NC: Not complete
Pathways shown in bold will be quantitatively evaluated.
Soil to depth of construction is assumed to be soil in 0 - 10 feet below ground surface.

Table 8-5
Available Total Dissolved Solids Data
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Site	Well ID	2002			2003	2004	January 2006	January 2007	Average
		2nd Quarter	3rd Quarter	4th Quarter	2nd Quarter				
SD-08	MW-08-01	10,900	10,400	10,480	10,600	--	--	11,500	**10,776**
	MW-08-03/ S10-MW7	--	--	--	--	17,300	15,200	--	**16,250**
	MW-08-04	10,300	12,400	9,320	8,860	--	6,610	7,200	**9,115**
	MW-08-05	4,530	4,730	59,200*	2,650	--	2,510	2,420	**3,368**
	MW-08-06	--	--	--	--	--	20,300	--	**20,300**
	MW-08-07	--	--	--	--		--	4,070	**4,070**
	MW-08-08	--	--	--	--		--	17,200	**17,200**
LF-10	S10-MW1	--	--	--	--	--	--	8,410	**8,410**
	S10-MW3	32,100	30,900	29,200	31,700	26,000	--	--	**29,980**
	S10-MW4	36,500	40,100	36,700	38,400	34,000		--	**37,140**
	S10-MW5	59,300	74,300	75,300	74,900	71,100		--	**70,980**
	S10-MW6	26,400	25,100	25,300	23,600	24,100	--	--	**24,900**
Number of Samples									**42**
Minimum									**2,420**
Maximum									**75,300**
Average									**24,355**
95% Upper Confidence Limit (Approximate Gamma, 0.05% confidence level)									**30,670**

Notes:
Units are in milligrams per liter (mg/L)
* Value not considered since it is a statistical outlier for well MW-08-05

Table 8-6(a)
Target Levels for Soil
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPCs	Combined Pathway from Surficial Soil for Resident (mg/kg)		Indoor Inhalation of Vapors from Subsurface Soil for Resident (mg/kg)		Combined Pathway from Soil for Construction Worker (mg/kg)	
	Target Level	Source	Target Level	Source	Target Level	Source
Barium	1.56E+04	1	N/A		6.02E+04	1
Beryllium	1.56E+02	1	N/A		5.62E+01	1
Cadmium	3.90E+01	1	N/A		1.54E+02	1
Chromium	2.34E+02*	1	N/A		2.61E+01	1
Copper	3.13E+03	1	N/A		1.24E+04	1
Nickel	1.56E+03	1	N/A		6.19E+03	1
Zinc	2.35E+04	1	N/A		9.29E+04	1
Arsenic	3.90E+00	1	N/A		8.52E+01	1
Lead	4.00E+02	1	N/A		8.00E+02	1
Mercury	1.00E+05	1	1.82E-02	3	9.27E+02	1
TRPH***	1.26E+03	2	N/A**		2.85E+03	2
4,4-DDD	2.44E+01	1	N/A		8.07E+02	1
4,4-DDE	1.72E+01	1	N/A		5.70E+02	1
4,4-DDT	1.72E+01	1	N/A		1.38E+02	1
Aldrin	2.84E-01	1	N/A		6.99E+00	1
Chlordane	1.62E+01	1	N/A		1.30E+02	1
Endosulfan II	4.69E+02	4	N/A		1.86E+03	4
Endosulfan sulfate	4.69E+02	4	N/A		1.86E+03	4
Heptachlor	1.08E+00	1	N/A		3.63E+01	1
Heptachlor epoxide	7.02E-01	4	N/A		3.91E+00	4
delta-BHC	3.55E+00	4	N/A		9.29E+01	4
gamma-BHC	4.37E+00	1	N/A		8.09E+01	1
1,1-Dichloroethene	2.06E+02	1	2.33E-02	3	6.78E+02	1
Benzene	1.03E+01	1	1.49E-03	3	1.74E+02	1
Chlorobenzene	1.94E+02	1	1.19E-01	3	2.45E+02	1
Ethylbenzene	1.28E+02	1	1.56E+00	3	1.28E+02	1
Methylene chloride	1.82E+02	1	1.84E-02	3	2.63E+03	1
Toluene	2.52E+02	1	3.67E-01	3	2.52E+02	1
Diethyl phthalate	4.89E+04	1	N/A		1.00E+05	1

Notes:
COPCs: Chemicals of Potential Concern
mg/kg: milligrams per kilogram
N/A: Not applicable since chemical is not volatile
* Soil Screening Level (SSL) for chromium VI was used.
** Target level for indoor inhalation pathway was not developed since individual compounds are evaluated.
*** SSLs for TRPH are averaged TPH values of all the petroleum product in the NMED *TPH Screening Guidelines* (NMED, 2005). Average value for resident direct exposure and for industrial direct exposure were used for combined pathways from surficial soil for resident and combined pathways from soil for construction worker, respectively.

Sources:
1: NMED, 2006. *Technical Background Document for Development of Soil Screening Levels*, Revision 4.0.
2: NMED, 2005. *New Mexico Environment Department TPH Screening Guidelines*.
3: Values developed using the J&E model (EPA, 2004). See Section 8.4.3 of the text of the RFI Report.
4: SSLs developed using the methodology in the NMED soil screening guidance (NMED, 2006).

Table 8-6(b)
Target Levels for Groundwater
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPCs	Indoor Inhalation of Vapors from Groundwater for Resident (mg/L)		Dermal contact with for Construction Worker (mg/L)		Outdoor Inhalation of Vapors from Groundwater for Construction Worker (mg/L)	
	Target Level	Source	Target Level	Source	Target Level	Source
Arsenic	N/A		7.74E+02	2	NA	
Barium	N/A		3.87E+00	2	NA	
Cadmium	N/A		6.45E-02	2	NA	
Chromium	N/A		NA		NA	
Lead	N/A		NA		NA	
Manganese	N/A		1.82E+02	2	NA	
Mercury	7.90E-03	1	1.94E+01	2	1.60E-01	2
Silver	N/A		NA		NA	
alpha-Chlordane	N/A		1.14E-02	2	1.02E+03	2
gamma-Chlordane	N/A		1.14E-02	2	1.02E+03	2
1,2-Dichloroethane	6.82E-02	1	6.02E+00	2	5.16E+02	2
1,2-Dichloropropane	4.51E-02	1	4.53E-01	2	2.11E+02	2
1,1,2-Trichloroethane	1.54E-01	1	1.89E+00	2	2.04E+03	2
o-Dichlorobenzene	NA		6.74E+00	2	2.06E+03	2
Acetone	1.84E+02	1	6.00E+03	2	2.55E+06	2
Benzene	5.13E-02	1	9.42E-01	2	7.24E+02	2
tert-Butylbenzene	1.46E+00	1	2.22E-01	2	4.40E+02	2
Chloroform	2.19E-02	1	4.64E+00	2	9.34E+02	2
Methyl ethyl ketone	2.60E+03	1	2.14E+03	2	4.10E+06	2
Diethyl phthalate	N/A		4.20E+02	2	3.65E+08	2
bis(2-Ethylhexyl)phthalate	N/A		6.87E-01	2	2.88E+07	2

Notes:
COPCs: Chemicals of Potential Concern
mg/L: milligrams per liter
N/A: Not applicable since chemical is not volatile
NA: Not available
1: Values developed using the J&E model (EPA, 2004). See Section 8.4.3 of the text of the RFI Report.
2: Values developed as per Section 8.4.4 of the text of the RFI Report.

Table 8-7(a)
Physical and Chemical Parameters Used for Calculating Indoor Inhalation Target Levels (for J&E Model)
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

CAS No.	Chemical	Organic carbon partition coefficient K_{oc} (cm^3/g)	Diffusivity in air D_a (cm^2/s)	Diffusivity in water D_w (cm^2/s)	Pure component water solubility S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature H (atm-m^3/mol)	Henry's law constant reference temperature T_R (°C)	Normal boiling point T_B (°K)	Critical temperature T_C (°K)	Enthalpy of vaporization at the normal boiling point $DH_{v,b}$ (cal/mol)	Unit risk factor URF $(mg/m^3)^{-1}$	Reference concentration RfC (mg/m^3)	Physical state at soil temperature (S, L, G)
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	2.0E-01	L
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.6E-05	0.0E+00	L
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.9E-05	4.0E-03	L
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	1.6E-05	1.4E-02	L
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	L
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	0.0E+00	L
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	L
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	6.0E-02	L
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	0.0E+00	L
95501	o-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	L
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	1.1E-06	1.0E+00	L
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	4.7E-07	3.0E+00	L
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	4.0E-01	L
78933	Methylethyl ketone	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	L
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750.00	14,127	0.0E+00	3.0E-04	L

Source: The Spreadsheet implementation of the J&E model (EPA, 2004)

Note these values may differ from the values included in the *Technical Background Document for Development of Soil Screening Levels* Revision 4.0 (NMED, 2006).

Table 8-7(b)
Exposure Factors Used for Calculating Indoor Inhalation Target Levels (for J&E Model)
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Parameter	Symbol	Unit	Values Used	Source
Averaging time for carcinogen	ATc	days	25550	NMED, 2006
Averaging time for non-carcinogen	ATnc		ED*365	
Body weight:				
Child resident	BWc	kilograms	15	NMED, 2006
Adult resident	BWa		70	
Exposure duration:				
Child resident	EDc	year	6	NMED, 2006
Adult resident	EDa		24	
Exposure frequency:				
Resident	EF	days/year	350	NMED, 2006

Notes:
NMED, 2006. *Technical Background Document for Development of Soil Screening Levels*, Revision 4.0
ED: Exposure duration

Table 8-7(c)
Media Specific Parameters Used for Calculating Indoor Inhalation Target Levels (for J&E Model)
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Parameter	Symbol	Unit	Value Used	Source
Source Parameters				
Average soil temperature	T_s	°C	17	Site-specific
Distance from bottom of slab to the top of contamination	L_T	cm	30.48	Site-specific
Depth below grade to water table	L_{WT}	cm	274.32	Site-specific
Geotechnical Parameters				
Soil dry bulk density	ρ_b	g/cm^3	1.62	EPA, 2004
Soil total porosity	n	unitless	0.39	EPA, 2004
Soil water-filled porosity	θ_w	cm^3/cm^3	0.049	EPA, 2004
Soil organic carbon fraction	f_{oc}	unitless	0.00365	Site-specific
Building Parameters				
Depth below grade to bottom of enclosed space floor	L_F	cm	15	EPA, 2004
Enclosed space floor thickness	L_{crack}	cm	10	EPA, 2004
Enclosed space floor length	L_B	cm	1000	EPA, 2004
Enclosed space floor width	W_B	cm	1000	EPA, 2004
Enclosed space height	H_B	cm	244	EPA, 2004
Floor-wall seam crack width	W	cm	0.1	EPA, 2004
Indoor air exchange rate	ER	1/hr	0.25	EPA, 2004
Average vapor flow rate into building	Q_{soil}	L/m	5	EPA, 2004

Notes:
EPA, 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings*.

Table 8-8(a)
Toxicity and Physical/Chemical Parameters Used for Calculating Groundwater Target Levels for Construction Worker
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPCs	Slope Factor		Reference Dose		Parameters for Dermal Contact Pathway				
	Inh. (SF_i)	Dermal (SF_d)	Inh. (RfD_i)	Dermal (RfD_d)	Dermal Permeability Constant (Kp)	Relative Contribution of Permeability Coefficient (B)	Lag Time (τ_{event})	Time to Reach Steady-State (t*)	Fraction Absorbed (FA)
	[kg-day/mg]	[kg-day/mg]	[mg/kg-day]	[mg/kg-day]	[cm/hr]	[--]	[hr]	[hr]	[--]
Acetone	NA	NA	9.00E-01	9.00E-01	5.23E-04	1.53E-03	2.22E-01	5.34E-01	1.00E+00
Benzene	2.70E-02	5.50E-02	8.60E-03	4.00E-03	1.49E-02	5.05E-02	2.92E-01	7.00E-01	1.00E+00
bis(2-Ethylhexyl)phthalate	1.40E-02	1.40E-02	2.00E-02	2.00E-02	2.50E-02	1.90E-01	1.66E+01	3.99E+01	8.00E-01
tert-Butylbenzene	NA	NA	1.00E-02	1.00E-02	1.70E-01	7.46E-01	5.62E-01	2.17E+00	1.00E+00
Chloroform	8.05E-02	3.10E-02	1.35E-02	1.00E-02	6.80E-03	2.87E-02	4.98E-01	1.19E+00	1.00E+00
1,2-Dichlorobenzene	NA	NA	6.90E-03	9.00E-02	4.10E-02	1.93E-01	7.11E-01	1.71E+00	1.00E+00
1,2-Dichloropropane	6.80E-02	6.80E-02	1.10E-03	1.10E-03	7.80E-03	3.17E-02	4.58E-01	1.10E+00	1.00E+00
Diethyl phthalate	NA	NA	8.00E-01	8.00E-01	3.90E-03	2.23E-02	1.87E+00	4.50E+00	1.00E+00
Ethylene dichloride (EDC)	9.10E-02	9.10E-02	1.40E-03	2.00E-02	4.20E-03	1.61E-02	3.82E-01	9.18E-01	1.00E+00
Methyl ethyl ketone	NA	NA	1.43E+00	6.00E-01	9.60E-04	3.14E-03	2.70E-01	6.47E-01	1.00E+00
1,1,2-Trichloroethane	5.60E-02	5.70E-02	4.00E-03	4.00E-03	6.40E-03	2.86E-02	5.96E-01	1.43E+00	1.00E+00
alpha-Chlordane	3.50E-01	3.50E-01	2.00E-04	5.00E-04	3.80E-02	2.94E-01	2.12E+01	5.09E+01	7.00E-01
gamma-Chlordane	3.50E-01	3.50E-01	2.00E-04	5.00E-04	3.80E-02	2.94E-01	2.12E+01	5.09E+01	7.00E-01
Arsenic	1.51E+01	NA	1.40E-04	2.00E-01	1.00E-03	NA	NA	NA	NA
Barium	6.30E+00	3.80E-01	2.00E-01	1.00E-03	1.00E-03	NA	NA	NA	NA
Cadmium	4.20E+01	4.20E+01	2.30E-06	5.00E-04	1.00E-03	NA	NA	NA	NA
Chromium (VI)	2.90E+02	NA	2.85E-05	NA	2.00E-03	NA	NA	NA	NA
Lead	NA	NA	1.43E-05	1.40E-01	NA	NA	NA	NA	NA
Manganese	NA	NA	1.40E-05	4.70E-02	1.00E-03	NA	NA	NA	NA
Mercury	NA	NA	2.86E-06	5.00E-03	1.00E-03	NA	NA	NA	NA
Silver	NA	NA	NA	NA	6.00E-04	NA	NA	NA	NA

Table 8-8(a)
Toxicity and Physical/Chemical Parameters Used for Calculating Groundwater Target Levels for Construction Worker
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPCs	Water Solubility (S)	Henry's Law Constant (H)	Org. Carbon Adsorption Coeff. (K_{oc})	Soil-Water Sorption Coeff. Vadose Zone (K_d)	Molecular Diffusion Coefficient		Molecular Weight (MW)
					in air (D^a)	in water (D^w)	
	[mg/L]	[L-water/L-air]	[cm^3/g]	[cm^3/g]	[cm^2/s]	[cm^2/s]	[g/g-mol]
Acetone	1.00E+06	1.60E-03	5.80E-01	NA	1.20E-01	1.10E-05	5.80E+01
Benzene	1.75E+03	2.28E-01	5.89E+01	NA	8.80E-02	9.80E-06	7.81E+01
bis(2-Ethylhexyl)phthalate	3.40E-01	4.18E-06	1.51E+07	NA	3.51E-02	3.66E-06	3.91E+02
tert-Butylbenzene	3.00E+01	5.20E-01	2.20E+03	NA	7.50E-02	7.80E-06	1.30E+02
Chloroform	7.92E+03	1.50E-01	3.98E+01	NA	1.04E-01	1.00E-05	1.20E+02
1,2-Dichlorobenzene	1.56E+02	7.79E-02	3.80E+01	NA	6.90E-02	7.90E-06	1.47E+02
1,2-Dichloropropane	2.80E+03	1.10E-01	4.40E+01	NA	7.80E-02	8.73E-06	1.10E+02
Diethyl phthalate	1.08E+03	1.85E-05	2.88E+02	NA	2.56E-02	6.35E-06	2.22E+02
Ethylene dichloride (EDC)	8.52E+03	4.01E-02	1.74E+01	NA	1.04E-01	9.90E-06	9.90E+01
Methyl ethyl ketone	2.23E+05	2.33E-03	4.50E+00	NA	8.95E-02	9.80E-06	7.21E+01
1,1,2-Trichloroethane	4.42E+03	3.74E-02	5.01E+01	NA	7.80E-02	8.80E-06	1.33E+02
alpha-Chlordane	4.64E-02	4.11E-03	7.08E+06	NA	3.32E-02	4.66E-06	4.10E+02
gamma-Chlordane	2.28E-02	4.11E-03	3.89E+05	NA	3.32E-02	4.65E-06	4.10E+02
Arsenic	NA	3.16E+01	NA	2.90E+01	NA	NA	7.49E+01
Barium	NA	1.00E+00	NA	4.10E+01	NA	NA	1.37E+02
Cadmium	NA	1.00E+00	NA	7.50E+01	NA	NA	1.12E+02
Chromium (VI)	NA	NA	NA	1.90E+01	NA	NA	5.20E+01
Lead	NA	1.00E+00	NA	9.00E+02	NA	NA	2.07E+02
Manganese	NA	1.00E+00	NA	6.50E+01	NA	NA	5.49E+01
Mercury	3.00E-02	1.00E+00	NA	5.20E+01	3.07E-02	6.30E-06	2.01E+02
Silver	NA	1.00E+00	NA	8.30E+00	NA	NA	1.08E+02

Sources:
NMED, 2006. *Technical Background Document for Development of Soil Screening Levels*, Revision 4.0
EPA, 2004. *Risk Assessment Guidance for Superfund Volume I: Part E*
TCEQ, 2006. Table for Texas Risk Reduction Program Rule.

Table 8-8(b)
Exposure Factors Used for Calculating Groundwater Target Levels for Construction Worker
Building 131 Washrack, Site SD-08,
Holloman Air Force Base, New Mexico

Parameter	Symbol	Unit	Values Used	Source
Averaging time for carcinogen	ATc	days	25,550	NMED, 2006
Averaging time for non-carcinogen	ATnc	days	ED*365	NMED, 2006
Body weight for construction worker	BW	kg	70	NMED, 2006
Exposure duration for construction worker	ED	year	1	NMED, 2006
Exposure frequency for construction worker	EF	day/yr	250	NMED, 2006
Outdoor inhalation for construction worker	IR	m^3/day	20	NMED, 2006
Dermal surface area*	SA	cm^2/day	3,300	NMED, 2006
Event frequency for dermal contact with groundwater	EV	event/day	2	Professional judgment
Event duration for dermal contact with groundwater	t_{event}	hr/event	4	Professional judgment

Notes:
NMED: New Mexico Environment Department
NMED, 2006. *Technical Background Document for Development of Soil Screening Levels* Revision 4.0
* NMED (2006) used the value to estimate dermal contact with soil pathway.

Table 8-8(c)
Media Specific Parameters Used for Calculating Groundwater Target Levels for Construction Worker
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Parameter	Symbol	Unit	Value Used	Source
Soil Parameters:				
Total soil porosity in vadose zone	n	unitless	0.39	EPA, 2004
Volumetric water content in vadose zone	θ_{ws}	cm^3/cm^3	0.049	EPA, 2004
Volumetric air content in vadose zone	θ_{as}	cm^3/cm^3	0.341	Calculated*
Thickness of vadose zone	h_v	cm	255.57	Calculated**
Volumetric water content in capillary fringe	θ_{ws}	cm^3/cm^3	0.303	EPA, 2004
Volumetric air content in capillary fringe	θ_{as}	cm^3/cm^3	0.087	Calculated
Thickness of capillary fringe zone	h_{cap}	cm	18.75	EPA, 2004
Groundwater Parameters:				
Depth to groundwater	L_{GW}	cm	274.32	Site-specific
Dimension of soil source area parallel to wind direction	W_{ga}	cm	7,315	Site-specific
Ambient Air Parameters:				
Mean annual wind speed	U_m	m/s	11.2	NCDC, 1998
Breathing zone height	δ_a	cm	200	ASTM, 1995

Notes:
American Society for Testing and Materials (ASTM), 1995. *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release*.
EPA: Environmental Protection Agency
EPA, 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings*.
National Climatic Data Center (NCDC), 1998. Climatic Wind Data for the United States. Value is for Alamogordo/Holloman AFB, New Mexico.
*: Calculated using $n - \theta_{ws}$
**: Calculated using $L_{GW} - h_{cap}$

Table 8-9(a)
Comparison of Maximum Detected Soil Concentrations with Target Levels for Soil
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPCs	Soil Target Levels			Maximum Detected Soil Concentration (mg/kg)	Maximum Detected Boring Location Depth (ft-ft)	Maximum Detected Exceed Any Target Levels?
	Combined Pathway from Surficial Soil for Resident (mg/kg)	Indoor Inhalation of Vapors from Subsurface Soil for Resident (mg/kg)	Combined Pathway from Soil for Construction Worker (mg/kg)			
Barium	15,600	N/A	60,200	114	SD-08-SB22 (2)	NE
Beryllium	156	N/A	56.2	0.71	SB-08-06 (2.5 - 4.5)	NE
Cadmium	39	N/A	154	3.71	SB-08-10 (0 - 2)	NE
Chromium	234	N/A	26.1	17	SB-08-02 (0 - 2)	NE
Copper	3,130	N/A	12,400	51	SB-08-01 (0 - 2)	NE
Nickel	1,560	N/A	6,190	14	SB-08-04 (0 - 2)	NE
Zinc	23,500	N/A	92,900	620	SB-08-02 (0 - 2)	NE
Arsenic	3.9	N/A	85.2	3.1	SD-08-SB23 (7)	NE
Lead	400	N/A	800	370	SB-08-02 (0 - 2)	NE
Mercury	100,000	18.2	927	2.2	SB-08-02 (0 - 2)	NE
TRPH	1,257	N/A	2,850	9,950	SB-08-04 (0 - 2)	E
4,4-DDD	24.4	N/A	807	4	SB-08-04 (0 - 2)	NE
4,4-DDE	17.2	N/A	570	5.6	SB-08-02 (0 - 2)	NE
4,4-DDT	17.2	N/A	138	9.3	SB-08-02 (0 - 2)	NE
Aldrin	0.284	N/A	6.99	0.041	SB-08-02 (0 - 2)	NE
Chlordane	16.2	N/A	130	4	SB-08-02 (0 - 2)	NE
Endosulfan II	469	N/A	1,860	0.0025	SB-08-01 (0 - 2)	NE
Endosulfan sulfate	469	N/A	1,860	0.0023	SB-08-06 (2.5 - 4.5)	NE
Heptachlor	1.08	N/A	36.3	0.493	SB-08-11 (0 - 2)	NE
Heptachlor epoxide	0.702	N/A	3.91	0.074	SB-08-02 (0 - 2)	NE
delta-BHC	3.55	N/A	92.9	0.021	SB-08-02 (0 - 2)	NE
gamma-BHC	4.37	N/A	80.9	0.00061	SB-08-01 (6 - 8)	NE
1,1-Dichloroethene	206	23.3	678	0.023	SB-08-03 (10 - 12)	NE
Benzene	10.3	1.49	174	0.0026	SB-08-04 (0 - 2)	NE
Chlorobenzene	194	119	245	0.04	SB-08-01 (0 - 2)	NE
Ethylbenzene	128	1,560	128	0.0026	SB-08-04 (0 - 2)	NE
Methylene chloride	182	18.4	2630	0.59	SB-08-04 (0 - 2)	NE
Toluene	252	367	252	0.0074	SB-08-04 (0 - 2)	NE
Diethyl phthalate	48,900	N/A	100,000	0.93	SD-08-SB22 (2)	NE

Notes:
COPCs: Chemicals of Potentional Concern
mg/kg: milligrams per kilogram
ft-ft: feet to feet below ground surface
E: Exceed
NE: Not exceed
N/A: Not applicable since chemical is not volatile

Table 8-9(b)
Comparison of Maximum Detected Groundwater Concentrations with Target Levels for Groundwater
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPCs	Groundwater Target Levels			Maximum Detected Groundwater Concentration (mg/L)	Maximum Detected Location Well ID (MM/Yr)	Maximum Detected Exceed Any Target Levels?
	Indoor Inhalation of Vapors from Groundwater for Resident (mg/L)	Dermal Contact with Groundwater for Construction Worker (mg/L)	Outdoor Inhalation of Vapors from Groundwater for Construction Worker (mg/L)			
Arsenic	N/A	774	NA	0.023	MW-08-01 (11/06)	NE
Barium	N/A	3.87	NA	0.048	MW-08-05 (11/06)	NE
Cadmium	N/A	0.0645	NA	0.0016	S10-MW01 (11/06)	NE
Chromium	N/A	NA	NA	0.0038	S10-MW01 (11/06)	N/A
Lead	N/A	NA	NA	0.0029	MW-08-05 (11/06)	N/A
Manganese	N/A	182	NA	3.0	MW-08-01 (04/03)	NE
Mercury	0.0079	19.4	0.160	0.00022	S10-MW01 (11/06)	NE
Silver	N/A	NA	NA	0.0011	MW-08-07 (12/06)	N/A
alpha-Chlordane	N/A	0.0114	1,020	0.000016	MW-08-07 (12/06)	NE
gamma-Chlordane	N/A	0.0114	1,021	0.000030	MW-08-07 (12/06)	NE
1,2-Dichloroethane	0.0682	6.02	516	0.134	MW-08-01 (11/06)	E
1,2-Dichloropropane	0.0451	0.453	211	0.010	MW-08-01 (11/06)	NE
1,1,2-Trichloroethane	0.154	1.89	2,044	0.0039	MW-08-01 (11/06)	NE
o-Dichlorobenzene	NA	6.74	2,061	0.00052	MW-08-01 (11/06)	NE
Acetone	184	6001	2,553,596	0.0095	S10-MW01 (11/06)	NE
Benzene	0.0513	0.942	724	0.00057	MW-08-01 (11/06)	NE
tert-Butylbenzene	1.46	0.222	440	0.00057	MW-08-01 (11/06)	NE
Chloroform	0.0219	4.64	934	0.0015	MW-08-03 (12/05)	NE
Methyl ethyl ketone	2,600	2137	4,096,185	0.0028	MW-08-05 (11/06)	NE
Diethyl phthalate	N/A	420	364,974,974	0.011	MW-08-07 (12/06)	NE
bis(2-Ethylhexyl)phthalate	N/A	0.687	28,820,871	0.0036	MW-08-05 (11/06)	NE

Notes:
E: Exceed
NE: Not exceed
N/A: Not applicable
NA: Not available
mg/L: milligrams per Liter
MM/Yr: Month and Year

Table 8-10(a)
Calculation of Average Soil Concentration for TRPH
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	SB-08-01		SB-08-02		SB-08-03		SB-08-04		SB-08-05		SB-08-06		Average Concentration
Depth (ft bgs)	0 - 2	6 - 8	0 - 2	5 - 7	0 - 2	10 - 12	0 - 2	2 - 4	2 - 4	6 - 8	2.5 - 4.5	7.5 - 9.5	
Date	1991		1991		1991		1991		1991		1991		
TRPH	87.4	24.6	1,320	<11.5	1,740	<13.61	9,950	35.8	191	16.4	<12.3	<13.6	1,116

Notes:
All units are milligrams per kilogram (mg/kg)
ft bgs: feet below ground surface
TRPH: Total Recoverable Petroleum Hydrocarbons

Table 8-10(b)
Calculation of Average Groundwater Concentration for 1,2-Dichloroethane
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

Sample ID	MW-08-01	MW-08-01	MW-08-03	MW-08-03	MW-08-05	MW-08-05	MW-08-05	MW-08-07	Average
Date	Apr-03	Nov-06	Apr-03	Dec-05	Apr-03	Dec-05	Nov-06	Dec-06	Concentration
1,2-Dichloroethane	0.073	0.134	0.00069	ND	<0.001	ND	<0.0005	0.0547	0.044

Notes:
Units are in milligrams per liter (mg/L)
ND: Not detected, but detection limit not known

Table 8-11(a)
Comparison of Average Soil TRPH Concentrations with Target Levels for Soil
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPC	Soil Target Level		Average Soil Concentration (mg/kg)	Average Exceeds Any Target Levels?
	Combined Pathway from Surficial Soil for Resident (mg/kg)	Combined Pathway from Soil for Construction Worker (mg/kg)		
TRPH	1,257	2,850	1,116	NE

Notes:
COPC: Chemical of Potention Concern
mg/kg: milligrams per kilogram
NE: Not exceed

Table 8-11(b)
Comparison of Average 1,2-Dichloroethane Groundwater Concentrations with Target Levels for Groundwater
Building 131 Washrack, Site SD-08
Holloman Air Force Base, New Mexico

COPC	Groundwater Target	Average Groundwater Concentration (mg/L)	Average Exceeds Any Target Levels?
	Indoor Inhalation of Vapors from Groundwater for Resident (mg/L)		
1,2-Dichloroethane	0.0682	0.044	NE

Notes:
COPC: Chemical of Potention Concern
mg/L: milligrams per liter
NE: Not exceed

ATTACHMENT A

NMED CORRESPONDENCE

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
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BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

February 9, 2005

Ms. Debbie Hartell
Chief
Environmental Flight
49 CES/CEV
550 Tabosa Ave.
Holloman AFB, NM 88330-8458

RE: ADDITIONAL INVESTIGATION REQUIREMENTS AT SITES - SS-02&05, SD-08, SS-39
HOLLOMAN AIR FORCE BASE
EPA ID# NM6572124422
HWB-HAFB-04-009

Dear Ms. Hartell:

The New Mexico Environment Department (NMED) has reviewed the 2003 Long-Term Groundwater Monitoring Report and older investigation reports for the above referenced sites. Based on this review the NMED has additional concerns and will require additional ground water investigations at these sites. The NMED's current policy (May 15, 1995) regarding the treatment of ground water contamination at Holloman AFB states, in part, that soil and ground water contaminant plumes must be adequately characterized and monitoring wells defining the plumes must be sampled at least annually. NMED interprets "monitoring wells defining the plumes" to include wells located within the plume, particularly in the area of highest contamination, not just the wells defining outside the perimeter of the plume. NMED does not believe the ground water monitoring at the referenced sites conforms to this policy.

The following provides a brief reasoning for requiring the additional work at each site.

Site SS-02/05 (SWMU AOC-T)

This site is currently undergoing a voluntary corrective measures to remove contaminated soils a part of the final remedy and site closure. As part of site closure a final risk assessment must be

performed. The risk assessment will need to look at the ground water exposure pathway in relation to potential vapors impacts under current and future land use scenarios. Currently only one cross-gradient well, MW-02&5-05, within the contaminant plume is being sampled.

NMED believes additional ground water sampling from throughout the contaminant plume is required to support the risk assessment and eventual site closure. Therefore, the following actions must be implemented:

1. A two-year groundwater-sampling program should be initiated. Samples should be collected on a quarterly or semi-annual basis for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

2. Ground water samples should be collected from MW-02&5-02. This well is located in the source area with historically the highest concentrations and would provide information on the affects of the soil excavation had on the ground water plume.

3. At least one additional well should be installed approximately 100 feet east of the excavation to better define the ground water plume. The only true down gradient well, MW-02&5-06, is located over 400 feet from the source area. As most petroleum plume are < 400 feet in length, especially at sites with flat gradients, this well is not real useful for monitoring plume characteristics but is better suited as a sentinel well to monitor plume migration. A second well should also be considered to the southeast of MW-02&5-02 based on the historic ground water flow direction.

4. Sampling and review of historical data from other site wells that have not been part of the LTM monitoring program should be performed to ensure that ground water conditions have not changed since the original investigations were performed. Wells such as MW-02&5-01, MW-02&5-07, and S1-MW3 should be included in inital sampling event.

<u>Site SD-08 (SWMU 4 and SWMU 82)</u>

The review of the current and historic ground water potentiometric surface maps presented in the LTM reports indicates a south/southwest ground water flow direction. Based on the location of SWMU 82 (source area) presented in the recently submitted no further action statement of basis (NFA SOB, November 2004), all of the monitoring wells sampled as part of the LTM program are either up gradient or cross-gradient from the known source area. Therefore, site ground water conditions cannot be adequately assessed. In addition, based on the information presented in the NFA SOB the drain field was not adequately characterized.

The following actions must be implemented:

1. As stated in NMED review of the NFA SOB (February 2005), the location of the SWMU 4 drain field must be positively identified and additional characterization must be performed.

2. Monitoring wells must be installed in the former drain field and at or down gradient of the wash rack. Ground water shall be sampled for VOCs, SVOCs, metals, and organochlorine pesticides.

3. Samples from these new wells should be collected on a quarterly or semi-annual basis over a two-year period.

Site SS-39 (SWMUs 165, 177, 179, 181)

As part of the LTM review, the NMED also looked at the original site investigation material presented in the *Phase I RCRA Facility Investigation Report, Table 2 Solid Waste Management Units*, September 1997 report. Based on the review of the original characterization data, it appears that all monitoring wells are installed up gradient of the TCE plume as determined by Geoprobe sampling locations. Ground water samples collected from several Geoprobe locations showed TCE concentrations between 324 *ug*/L and 2730 *ug*/L in locations down gradient of the LTM sampling locations. Additional ground water characterization work was performed in 1998 that defined the ground water plume but no permanent monitoring wells were installed. See the attached map. Also, according to the site summary presented in the HAFB's September 1995 Decision Document, tetrachloroethene (PCE) concentration of 95 mg/kg was detected in the soils around the drainage sumps at Building 1176. This is above the NMED's residential risk based soil screening levels of 9.83 mg/kg.

Therefore, the following actions are required:

1. An in-depth review of previous investigations should be performed and summarized in the work plan. An investigation of the current soil and ground water conditions shall be performed based on the analysis of the historical data.

2. Ground water monitoring wells shall be installed in area of highest contaminant concentrations and at down gradient locations. The distance between well(s) shall be no more than 200 feet, unless approved by NMED. The down gradient extent of the plume shall be defined where the concentration of TCE in the ground water is less than 5 mg/L. The wells shall be installed at the shallowest depth possible to yield representative ground water samples.

3. A vertical extent well shall be installed in the area of highest contaminant concentrations.

4. Initially, samples shall be analyzed for VOCs, SVOCs, RCRA metals, and perchlorate.

5. Samples from these new wells should be collected on a quarterly or semi-annual basis over a two-year period.

Additional requirements for these sites may be required based on the historical information provided in the work plans.

Work plans for the above requirements must be reviewed and approved by the NMED before the work is performed. The work plans shall include detailed summaries of the operational history and investigational history of each site, potential contaminants of concern, proposed monitoring well locations and construction details, analytical parameters and methods, quality controls and any other details as determined by the NMED as necessary to properly investigate each site. The work plans shall be submitted within 90 days from receipt of this letter.

If you have any questions, please contact me at (505) 845-5932.

Sincerely,

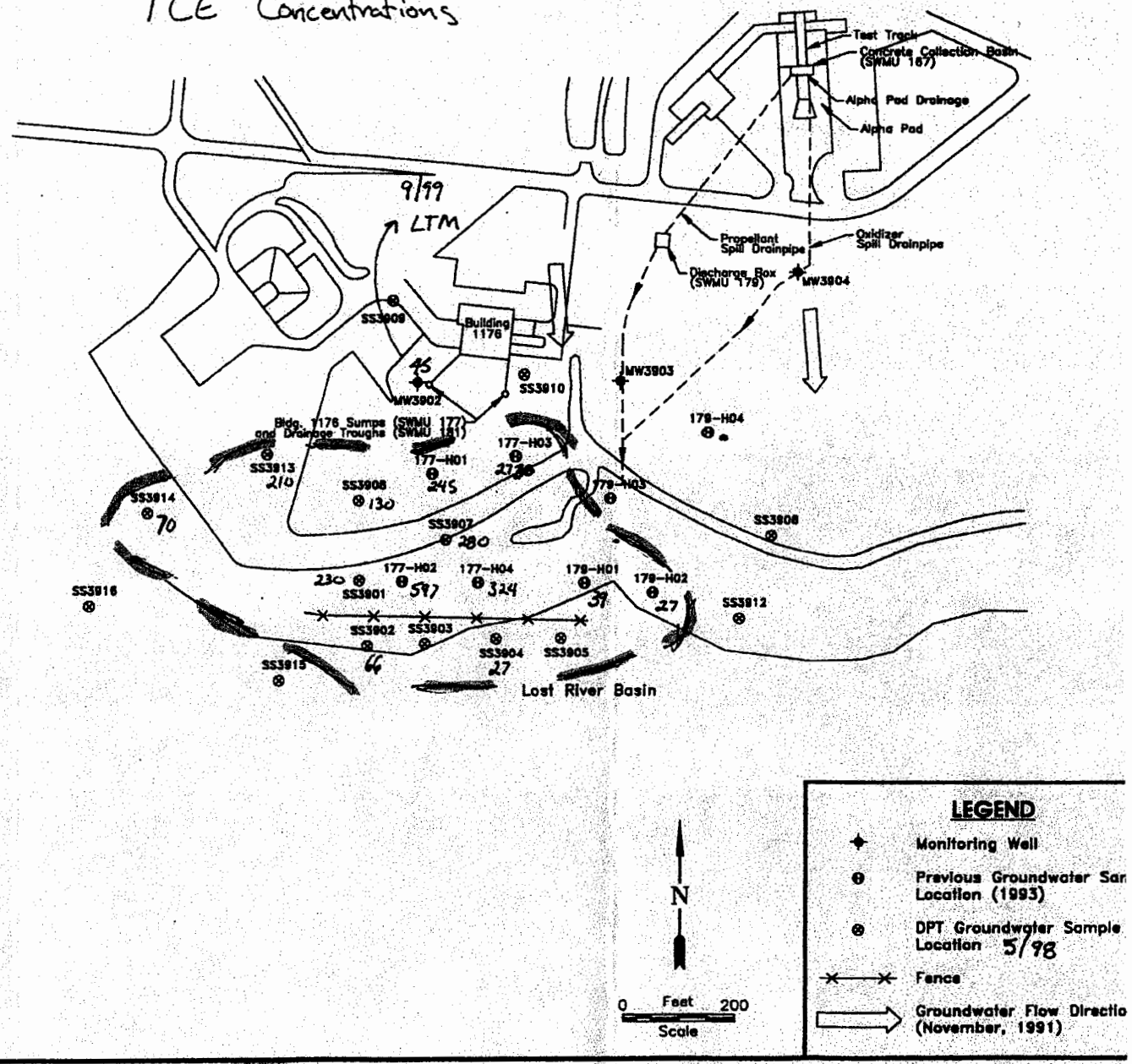
Steve Jetter
Permits Management Program

cc: James Bearzi, NMED HWB
John Kieling, NMED HWB
Cornelius Amindyas, NMED HWB
James Harris, EPA-Region 6
Dan Holmquist, HAFB
File: Reading and HAFB-HSWA 2005

SS-39 SWMU 177 & 179

TCE Concentrations

Look in
- Phase II, Table 2 RFI Report
  Radian 1994
  or
- Phase I, Table 2, RFI Report
  Sept 97



0307SS39.DWG (1:200) 08-06-98

Figure 1. SS-39 SITE MAP WITH DPT GROUNDWATER SAMPLING LOCA

State of New Mexico
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Hazardous Waste Bureau
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BILL RICHARDSON
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RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

July 27, 2005

Ms. Debbie Hartell
Chief
Environmental Flight
49 CES/CEV
550 Tabosa Ave.
Holloman AFB, NM 88330-8458

SUBJECT: REQUEST FOR SUPPLEMENTAL INFORMATION: ADDITIONAL INVESTIGATION REQUIREMENTS WORK PLAN, ERP SITE SD-08 (SWMU 82 – BUILDING 131 WASHRACK), MAY 2005
HOLLOMAN AIR FORCE BASE
EPA ID# NM6572124422
HWB-HAFB-05-003

Dear Ms. Hartell:

The New Mexico Environment Department (**NMED**) Hazardous Waste Bureau (**HWB**) has reviewed the subject document for technical completeness. Based on that review, NMED has determined that this Work Plan can not be approved at this time as revisions to this Work Plan are necessary. Enclosed is a list of requested revisions, which Holloman Air Force Base (**HAFB**) must address. Please respond to this Request for Supplemental Information (**RSI**) within thirty (30) calendar days of the date of this letter. Failure to respond within this time period may result in the issuance of a Notice of Deficiency. NMED may consider a petition for an extension of the deadline for submittal of the additional information, provided that written justification and the expected submittal date are provided by HAFB.

If you have any questions regarding this matter or if you would like to discuss the comments prior to your response, please contact David Strasser at (505) 222-9526.

Sincerely,

Cornelius Amindyas
HAFB Project Leader
Permits Management Program

CA/ds

cc: James Bearzi, Chief, NMED, HWB
William Moats, NMED, HWB
David Strasser, NMED, HWB
Debra Tellez, EPA, Region 6 (6PD-F)
Dan Holmquist, HAFB
File: Reading and HAFB-HSWA

ATTACHMENT
REQUEST FOR SUPPLEMENTAL INFORMATION
ADDITIONAL INVESTIGATION REQUIREMENTS WORK PLAN,
ERP SITE SD-08 (SWMU 82 – BUILDING 131 WASHRACK), MAY 2005
HOLLOMAN AIR FORCE BASE (HAFB)
EPA ID# NM6572124422

TASK # HWB-HAFB-05-003

The following are NMED's requested revisions to HAFB's Additional Investigation Work Plan for ERP Site SD-08 (SWMU 82), dated May 2005. The quotations in **bold print** are taken directly from the subject document. Please address the comments and submit the revised information as directed in the cover letter.

COMMENTS

1. Page 2-2, Section 2.1.4, "**Monitoring Well Installation**"

   a) NMED requests that during the installation of the new "downgradient well", two soil samples be collected and analyzed as specified in Section 2.1.3, DPT Soil Assessment. Soils at the "upgradient well" will not require analysis.

   b) In correspondence from the NMED dated February 9, 2005, which outlined the requirements for this additional investigation, the Work Plan was to include monitoring well construction details. These details were not included. NMED requests that HAFB submit information regarding well construction details.

2. Page 2-3, Section 2.3, "**Groundwater Sampling**", 1st Sentence

   This sentence indicates that three existing wells will be sampled (MW08-03, MW08-05 and S10-MW01). NMED requests that HAFB collect a groundwater sample from well MW08-01 instead of from well MW08-03. NMED understands that well MW08-01 is cross gradient to the suspected source. However, MW08-01 has a history of VOC detections that should be monitored. In addition, the groundwater from well MW08-03 has been relatively uncontaminated and the proposed "upgradient well" is in close proximity to well MW08-03.

3. Page 3-1, Section 3.2, "**Evaluation of Groundwater Contamination**", 2nd Sentence

   NMED requests that HAFB revise this sentence to read as follows (additions underlined; deletions struck through): "If ~~more than~~ one or more water contaminants affecting human health ~~is~~ are present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section ~~20.6.2.1101~~ 20.6.2.7.VV NMAC … ".

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DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

December 29, 2005

Ms. Debbie Hartell
Chief
Environmental Flight
49 CES/CEV
550 Tabosa Ave.
Holloman AFB, NM 88330-8458

SUBJECT: NOTICE OF APPROVAL: ADDITIONAL INVESTIGATION REQUIREMENTS WORK PLAN FOR ERP SITE SD-08 (SWMU 82 – BUILDING 131 WASHRACK), AUGUST 2005 (REVISION NUMBER 1) HOLLOMAN AIR FORCE BASE EPA ID# NM6572124422 HWB-HAFB-05-003

Dear Ms. Hartell:

The New Mexico Environment Department (**NMED**) has reviewed the Holloman Air Force Base (**HAFB**) "Additional Investigation Work Plan" for technical completeness. NMED hereby approves the work plan for implementation. However, the following comment must be addressed during implementation of the proposed work.

1. <u>Site Figures</u>

NMED requires that when compiling the revised investigation report for which this work plan was prepared, HAFB shall include a coordinate system (i.e., UTM, latitude/ longitude) on all the figures. The boundaries of the site and its coordinates must also be shown. High accuracy (+/-3 ft) GPS coordinates are acceptable. NMED is requiring the inclusion of this information in the Work Plan because Figures 1-4 and 2-1 of the document do not presently contain this coordinate system.

If you have any questions regarding this matter, please contact David Strasser at (505) 222-9526.

Sincerely,

Cornelius Amindyas
HAFB Project Leader
Permits Management Program

CA/dcs

cc: James Bearzi, Chief, NMED, HWB
John Kieling, NMED, HWB
William Moats, NMED, HWB
David Strasser, NMED, HWB
Debra Tellez, EPA, Region 6 (6PD-F)
Dan Holmquist, HAFB
File: Reading and HAFB-HSWA, 2005

APPENDIX A

HISTORICAL DATA FROM PREVIOUS INVESTIGATIONS

Appendix A-1

Portion of *Remedial Investigation (RI) Report, Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, NM*

Radian, June 1992

SD-08

RADIAN
CORPORATION

DCN 92-269-004-16-07
RCN 269-004-16-06

(Mailing Address)
P.O. Box 201088
Austin, TX 78720-1088
(Shipping Address)
8501 North Mopac Blvd.
Austin, TX 78759
(512)454-4797

REMEDIAL INVESTIGATION (RI) REPORT

INVESTIGATION, STUDY AND RECOMMENDATION FOR 29 WASTE SITES HOLLOMAN AIR FORCE BASE, NM

Volume I

DRAFT FINAL

Prepared for:

49 SG/CEV
Holloman Air Force Base, NM

Prepared by:

Radian Corporation
8501 North MoPac Blvd.
P.O. Box 201088
Austin, Texas 78720-1088

Under Contract No. DACW45-89-D-0515 with:

U.S. Army Corps of Engineers
Omaha District
Omaha, Nebraska

June 1992

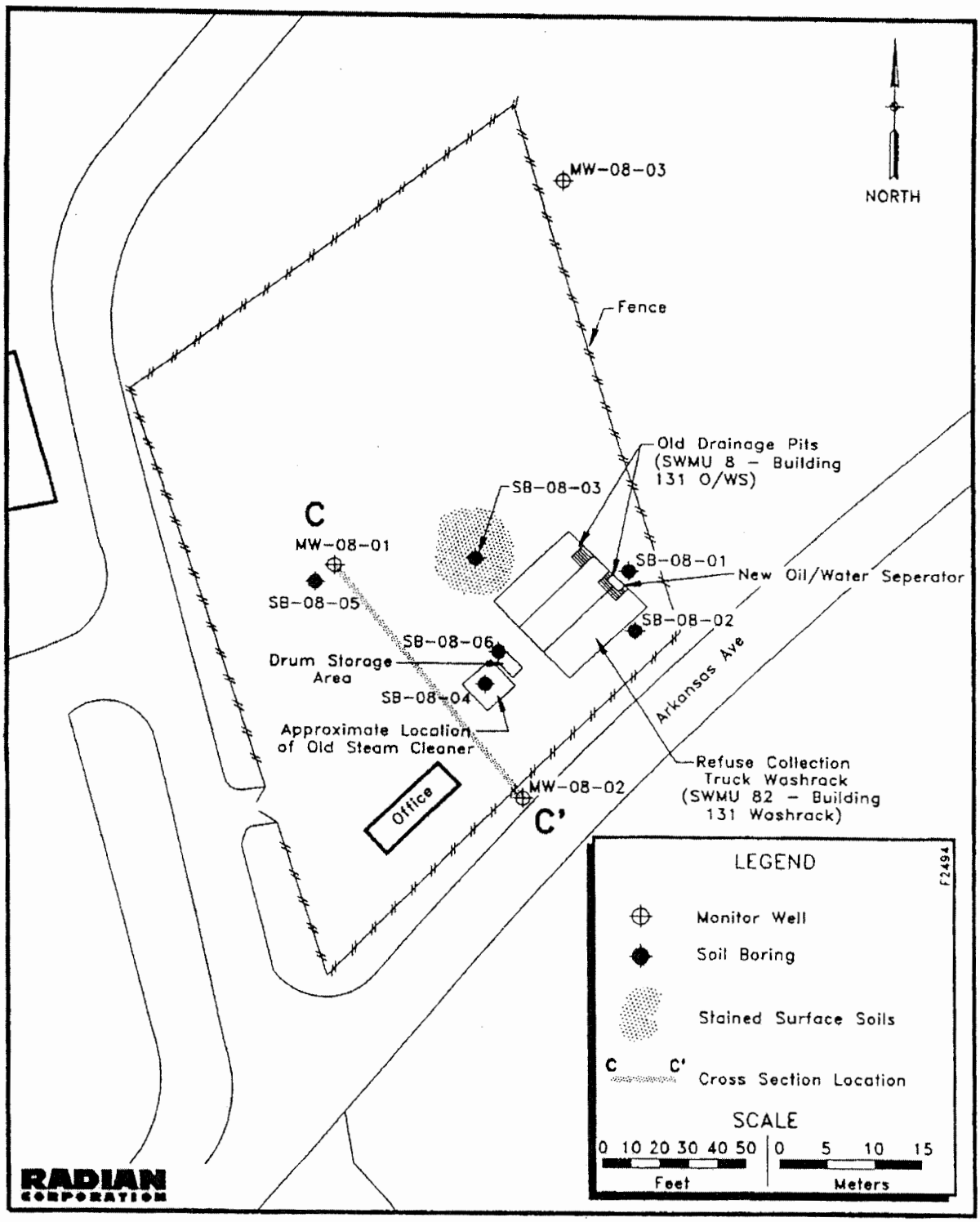

Figure 4-12. Soil Boring, Monitor Well, and Cross Section Locations for Site 8

Table 4-23

Concentrations of Inorganic Analytes in Site 8 Soil Samples

Location:	SB-08-01				SB-08-02			
Sample ID: Depth:	91JULJ008-001 0 - 2 ft		91JULJ008-002 6 - 8 ft		91JULJ008-003 0 - 2 ft		91JULJ008-004 5 - 7 ft	
Analyte	Result	(DL)	Result	(DL)	Result	(DL)	Result	(DL)
SW6010 - Metals (mg/kg)								
Beryllium	0.39 @	(0.31)	ND	(0.45)	0.36 @	(0.17)	0.43 @	(0.15)
Cadmium	0.92 @	(0.78)	ND	(1.1)	1.8 @	(0.42)	ND	(0.37)
Chromium	13	(1.6)	6.0 @	(2.2)	17	(0.83)	11	(0.74)
Copper	51	(3.1)	ND	(4.5)	37	(1.7)	5.8 @	(1.5)
Nickel	10 @	(3.1)	ND	(4.5)	9.3	(1.7)	6.1 @	(1.5)
Zinc	180	(3.1)	12 @	(4.5)	620	(1.7)	21	(1.5)
SW7060 - Arsenic (mg/kg)	ND	(1.3)	ND	(0.75)	ND	(3.3)	1.6 @	(1.2)
SW7421 - Lead (mg/kg)	50	(2.4)	1.1 @	(0.28)	370	(25)	2.3	(0.23)
SW7471 - Mercury (mg/kg)	0.49	(0.047)	ND	(0.060)	2.2	(0.19)	ND	(0.053)

Table 4-23

(Continued)

Location	SB-08-03				SB-08-04			
Sample ID: Depth:	91JULJH008-005 0 - 2 ft		91JULJH008-006 10 - 12 ft		91JULJH008-007 0 - 2 ft		91JULJH008-008 2 - 4 ft	
Analyses	Result	(DL)	Result	(DL)	Result	(DL)	Result	(DL)
SW6010 - Metals (mg/kg)								
Beryllium	0.34 @	(0.31)	ND	(0.40)	0.44 @	(0.31)	ND	(0.38)
Cadmium	ND	(0.78)	ND	(1.0)	ND	(0.77)	ND	(0.95)
Chromium	8.9	(1.6)	2.2 @	(2.0)	15	(1.5)	8.2 @	(1.9)
Copper	10 @	(3.1)	ND	(4.0)	20	(3.1)	7.0 @	(3.8)
Nickel	6.8 @	(3.1)	ND	(4.0)	14 @	(3.1)	7.1 @	(3.8)
Zinc	48	(3.1)	6.3 @	(4.0)	50	(3.1)	30	(3.8)
SW7060 - Arsenic (mg/kg)	ND	(1.3)	ND	(0.76)	1.8 @	(0.67)	1.5 @	(0.71)
SW7421 - Lead (mg/kg)	19	(0.96)	0.30 @	(0.29)	8.1	(0.50)	18	(1.1)
SW7471 - Mercury (mg/kg)	0.11 @	(0.050)	ND	(0.064)	0.80	(0.050)	ND	(0.053)

Table 4-23

(Continued)

Location:	SB-08-05				SB-08-06			
Sample ID; Depth:	91JULJ008-009 2 - 4 ft		91JULJ008-010 6 - 8 ft		91JULJ008-011 2.5 - 4.5 ft		91JULJ008-012 7.5 - 9.5 ft	
Analyses	Result	(DL)	Result	(DL)	Result	(DL)	Result	(DL)
SW6010 - Metals (mg/kg)								
Beryllium	0.45 @	(0.32)	ND	(0.42)	0.71 @	(0.36)	ND	(0.40)
Cadmium	ND	(0.80)	ND	(1.0)	0.92 @	(0.91)	ND	(1.0)
Chromium	9.7	(1.6)	4.0 @	(2.1)	7.9 @	(1.8)	6.4 @	(2.0)
Copper	3.2 @	(3.2)	ND	(4.2)	5.2 @	(3.6)	4.2 @	(4.0)
Nickel	7.0 @	(3.2)	ND	(4.2)	6.8 @	(3.6)	4.9 @	(4.0)
Zinc	23	(3.2)	9.6 @	(4.2)	16 @	(3.6)	11 @	(4.0)
SW7060 - Arsenic (mg/kg)	2.1 @	(1.2)	1.1 @	(0.75)	3.0 @	(0.68)	1.1 @	(0.78)
SW7421 - Lead (mg/kg)	2.0	(0.23)	0.75 @	(0.28)	1.0 @	(0.26)	1.3 @	(0.29)
SW7471 - Mercury (mg/kg)	ND	(0.053)	ND	(0.060)	ND	(0.056)	ND	(0.060)

NOTE: Table presents only constituents detected in soil at this site.
@ = Measured result is less than five times the detection limit.
ND = Not Detected, at the reported detection limit.

Table 4-24

Concentrations of Organic Analytes in Site 8 Soil Samples

Location:	SB-08-01			
Sample ID: Depth:	91JUL11008-001 0 - 2 ft		91JUL11008-002 6 - 8 ft	
Analytes	Result	(DL)	Result	(DL)
EPA 418.1 - TRPH (mg/kg)	87.4	(10.8)	24.6 @	(11.5)
SW8080 - Organochlorine Pesticides and PCBs (μg/kg)				
4,4'-DDD	110 C	(5.6)	ND	(0.60)
4,4'-DDE	410 C	(5.6)	ND	(0.60)
4,4'-DDT	400 C	(11)	ND	(1.2)
Aldrin	ND	(5.6)	0.49 J	(0.60)
Chlordane	950 C	(28)	ND	(3.0)
Endosulfan II	2.5 J	(17)	ND	(1.8)
Endosulfan Sulfate	ND	(28)	1.1 J	(3.0)
Heptachlor	6.3 C@	(5.6)	0.31 J	(0.60)
Heptachlor epoxide	11 C@	(5.6)	0.30 J	(0.60)
de[illegible]C	16 C@	(5.6)	1.6 C@	(0.60)
gamma-BHC	ND	(5.6)	0.61 X@	(0.60)
SW8240 - Volatile Organics (μg/kg)				
1,1-Dichloroethene	ND	(110)	ND	(120)
Benzene	ND	(110)	ND	(120)
Chlorobenzene	40 J	(110)	2.8 J	(120)
Ethyl benzene	ND	(110)	ND	(120)
Methylene chloride	150 B@	(110)	51 JB	(120)
Toluene	5.7 J	(110)	ND	(120)

Table 4-24

(Continued)

Location:	SB-08-02			
Sample ID: Depth:	91JULI008-003 0 - 2 ft		91JULI008-004 5 - 7 ft	
Analyte	Result	(DL)	Result	(DL)
EPA 418.1 - TRPH (mg/kg)	1320	(112)	ND	(11.5)
SW8080 - Organochlorine Pesticides and PCBs (µg/kg)				
4,4'-DDD	4000 CD	(56)	1.0 X@	(0.58)
4,4'-DDE	5600 CD	(560)	10.0 C	(0.58)
4,4'-DDT	9300 CD	(1100)	12 C	(1.2)
Aldrin	41 X	(5.6)	0.49 J	(0.58)
Chlordane	4000 CD	(280)	20 C	(2.9)
Endosulfan II	ND	(17)	ND	(1.7)
Endosulfan Sulfate	ND	(28)	0.27 J	(2.9)
Heptachlor	56 C	(5.6)	0.90 C@	(0.58)
Heptachlor epoxide	74 C	(5.6)	4.4 C	(0.58)
delta-BHC	21 C@	(5.6)	1.6 C@	(0.58)
gamma-BHC	ND	(5.6)	ND	(0.58)
SW8240 - Volatile Organics (µg/kg)				
1,1-Dichloroethene	ND	(110)	ND	(120)
Benzene	ND	(110)	ND	(120)
Chlorobenzene	15 J	(110)	ND	(120)
Ethyl benzene	ND	(110)	ND	(120)
Methylene chloride	410 B@	(110)	380 B@	(120)
Toluene	7.4 J	(110)	5.5 J	(120)

Table 4-24

(Continued)

Location:	SB-08-03			
Sample ID: Depth:	91JUL1H008-005 0 - 2 ft		91JUL1H008-006 10 - 12 ft	
Analyses	Result	(DL)	Result	(DL)
EPA 418.1 - TRPH (mg/kg)	1740	(112)	ND	(13.61)
SW8080 - Organochlorine Pesticides and PCBs (μg/kg)				
4,4'-DDD	28 C	(5.6)	ND	(0.79)
4,4'-DDE	86 C	(5.6)	ND	(0.79)
4,4'-DDT	26 C@	(11)	ND	(1.6)
Aldrin	ND	(5.6)	0.45 J	(0.79)
Chlordane	230 C	(28)	ND	(3.9)
Endosulfan II	ND	(17)	ND	(2.4)
Endosulfan Sulfate	ND	(28)	0.64 J	(3.9)
Heptachlor	ND	(5.6)	0.87 C@	(0.79)
Heptachlor epoxide	ND	(5.6)	ND	(0.79)
delta-BHC	15 C@	(5.6)	2.1 C@	(0.79)
gamma-BHC	ND	(5.6)	ND	(0.79)
SW8240 - Volatile Organics (μg/kg)				
1,1-Dichloroethene	ND	(110)	23 J	(160)
Benzene	ND	(110)	ND	(160)
Chlorobenzene	5.6 J	(110)	ND	(160)
Ethyl benzene	ND	(110)	ND	(160)
Methylene chloride	150 B@	(110)	470 B@	(160)
Toluene	6.0 J	(110)	7.1 J	(160)

NOTE: Table presents only constituents detected in soil at this site.
C = Presence and quantitation of analyte confirmed by second column analysis.
ND = Not Detected, at the reported detection limit.
J = Detected below the detection limit.
@ = Measured result is less than five times the detection limit.
X = SW8080--Presence of analyte confirmed by second column analysis, but quantitation was not confirmed.
B = Analyte detected in laboratory blank analysis, no blank subtraction performed.
D = Secondary dilution required for this analyte.

Table 4-24

(Continued)

Location:	SB-08-04			
Sample ID: Depth:	91JULI008-007 0 - 2 ft		91JULI008-008 2 - 4 ft	
Analyses	Result	(DL)	Result	(DL)
EPA 418.1 - TRPH (mg/kg)	9950	(550)	35.8 @	(12.0)
SW8080 - Organochlorine Pesticides and PCBs (μ g/kg)				
4,4'-DDD	230 C	(5.5)	ND	(0.61)
4,4'-DDE	530 C	(5.5)	3.3 C	(0.61)
4,4'-DDT	500 C	(11)	1.0 J	(1.2)
Aldrin	5.0 J	(5.5)	ND	(0.61)
Chlordane	730 C	(27)	ND	(3.1)
Endosulfan II	ND	(16)	ND	(1.8)
Endosulfan Sulfate	0.68 J	(27)	ND	(3.1)
Heptachlor	12 C@	(5.5)	0.30 J	(0.61)
Heptachlor epoxide	12 C@	(5.5)	ND	(0.61)
delta-BHC	ND	(5.5)	1.8 C@	(0.61)
gamma-BHC	ND	(5.5)	ND	(0.61)
SW8240 - Volatile Organics (μ g/kg)				
1,1-Dichloroethene	ND	(110)	ND	(120)
Benzene	2.6 J	(110)	ND	(120)
Chlorobenzene	ND	(110)	ND	(120)
Ethyl benzene	2.6 J	(110)	ND	(120)
Methylene chloride	590 B	(110)	320 B@	(120)
Toluene	ND	(110)	ND	(120)

Table 4-24

(Continued)

Location:	SB-08-05			
Sample ID: Depth:	91JUL11008-009 2 - 4 ft		91JUL11008-010 6 - 8 ft	
Analyses	Result	(DL)	Result	(DL)
EPA 418.1 - TRPH (mg/kg)	191	(13.7)	16.4 @	(13.8)
SW8080 - Organochlorine Pesticides and PCBs (μg/kg)				
4,4'-DDD	0.11 J	(0.61)	ND	(0.68)
4,4'-DDE	1.0 C@	(0.61)	ND	(0.68)
4,4'-DDT	0.34 J	(1.2)	ND	(1.4)
Aldrin	ND	(0.61)	ND	(0.68)
Chlordane	ND	(3.0)	ND	(3.4)
Endosulfan II	ND	(1.8)	ND	(2.1)
Endosulfan Sulfate	ND	(3.0)	ND	(3.4)
Heptachlor	0.39 J	(0.61)	ND	(0.68)
Heptachlor epoxide	ND	(0.61)	ND	(0.68)
delta-BHC	ND	(0.61)	ND B	(0.68)
gamma-BHC	ND	(0.61)	ND	(0.68)
SW8240 - Volatile Organics (μg/kg)				
1,1-Dichloroethene	ND	(120)	ND	(130)
Benzene	ND	(120)	ND	(130)
Chlorobenzene	ND	(120)	ND	(130)
Ethyl benzene	ND	(120)	ND	(130)
Methylene chloride	ND	(120)	ND	(130)
Toluene	ND	(120)	ND	(130)

Table 4-24

(Continued)

Location:	SB-08-06			
Sample ID: Depth:	91JUL14008-011 2.5 - 4.5 ft		91JUL14008-012 7.5 - 9.5 ft	
Analyses	Result	(DL)	Result	(DL)
EPA 418.1 - TRPH (mg/kg)	ND	(12.3)	ND	(13.6)
SW8080 - Organochlorine Pesticides and PCBs (μg/kg)				
4,4'-DDD	3.2 C	(0.61)	4.0 C	(0.63)
4,4'-DDE	0.055 J	(0.61)	0.76 X@	(0.63)
4,4'-DDT	1.3 C@	(1.2)	2.0 C@	(1.3)
Aldrin	ND	(0.61)	1.7 X@	(0.63)
Chlordane	17 C	(3.1)	32 C	(3.1)
Endosulfan II	ND	(1.8)	ND	(1.9)
Endosulfan Sulfate	2.3 JB	(3.1)	ND	(3.1)
Heptachlor	ND	(0.61)	ND	(0.63)
Heptachlor epoxide	ND	(0.61)	ND	(0.63)
delta-BHC	1.8 C@	(0.61)	1.7 C@	(0.63)
gamma-BHC	ND	(0.61)	ND	(0.63)
SW8240 - Volatile Organics (μg/kg)				
1,1-Dichloroethene	ND	(120)	ND	(130)
Benzene	ND	(120)	ND	(130)
Chlorobenzene	ND	(120)	ND	(130)
Ethyl benzene	ND	(120)	ND	(130)
Methylene chloride	170 B@	(120)	570 B@	(130)
Toluene	ND	(120)	ND	(130)

NOTE: Table presents only constituents detected in soil at this site.
C = Presence and quantitation of analyte confirmed by second column analysis.
ND = Not Detected, at the reported detection limit.
J = Detected below the detection limit.
@ = Measured result is less than five times the detection limit.
X = SW8080—Presence of analyte confirmed by second column analysis, but quantitation was not confirmed.
B = Analyte detected in laboratory blank analysis, no blank subtraction performed.
D = Secondary dilution required for this analyte.

Table 4-25

Concentrations of Inorganic Analytes in Site 8 Groundwater Samples

Location: Sample ID:	MW-08-01 08-01-01		MW-08-02 08-02-01		MW-08-03 08-03-01	
Analyses	Result	(DL)	Result	(DL)	Result	(DL)
EPA 160.1 - Total Dissolved Solids (mg/L)	4800	(10)	2800	(10)	15000	(10)
EPA 300.0 - Chloride (mg/L)	120	(0.52)	51	(0.13)	1700	(2.6)
EPA 300.0 - Sulfate (mg/L)	2600	(5.0)	1700	(2.5)	3800	(5.0)
EPA 340.2 - Fluoride (mg/L)	2.7	(0.10)	3.3	(0.10)	1.9	(0.10)
EPA 353.1 - Nitrate-Nitrite (mg/L)	ND	(0.022)	0.095 @	(0.022)	19	(0.22)
EPA 365.2 - Total Phosphorus (mg/L)	0.53	(0.020)	0.13	(0.020)	0.15	(0.020)
SW6010 - Metals (mg/L)						
Beryllium	0.0031 @	(0.0020)	ND	(0.0020)	ND	(0.0020)
Chromium	0.013 @	(0.010)	ND	(0.010)	ND	(0.010)
Copper	0.031 @	(0.020)	ND	(0.020)	ND	(0.020)
Nickel	0.021 @	(0.020)	ND	(0.020)	ND	(0.020)
Zinc	0.086 @	(0.020)	ND	(0.020)	ND	(0.020)
SW7060 - Arsenic (mg/L)	0.011 @	(0.0040)	0.0051 @	(0.0040)	0.011 @	(0.0040)
SW7421 - Lead (mg/L)	0.021	(0.0030)	0.0058 @	(0.0030)	ND	(0.0030)

NOTE: Table presents only constituents detected in groundwater at this site.
@ = Measured result is less than five times the detection limit.
ND = Not Detected, at the reported detection limit.

Table 4-26

Concentrations of Organic Analytes in Site 8 Groundwater Samples

Location: Sample ID:	MW-08-01 08-01-01		MW-08-02 08-02-01		MW-08-03 08-03-01	
Analyte	Result	(DL)	Result	(DL)	Result	(DL)
SW8080 - Organochlorine Pesticides and PCBs (ug/L)						
4,4'-DDD	ND	(0.0097)	ND	(0.010)	0.033 C@	(0.0097)
4,4'-DDE	ND	(0.0097)	ND	(0.010)	0.023 C@	(0.0097)
Aldrin	ND	(0.0097)	ND	(0.010)	0.18 X	(0.0097)
Chlordane	ND	(0.048)	ND	(0.050)	0.44 X	(0.048)
Dieldrin	0.017 C@	(0.0097)	ND	(0.010)	0.67 X	(0.0097)
Heptachlor	ND	(0.0097)	ND	(0.010)	0.15 C	(0.0097)
Heptachlor epoxide	ND	(0.0097)	ND	(0.010)	0.50 X	(0.0097)
alpha-BHC	0.068 X	(0.0097)	ND	(0.010)	ND	(0.0097)
delta-BHC	2.8 X	(0.0097)	ND	(0.010)	0.016 X@	(0.0097)
gamma-BHC	0.066 C	(0.0097)	ND	(0.010)	0.45 C	(0.0097)
SW8240 - Volatile Organics (ug/L)						
1,2-Dichloroethane	ND	(25)	ND	(5.0)	8.0 @	(5.0)
1,2-Dichloropropane	8.3 J	(25)	ND	(5.0)	ND	(5.0)
Benzene	10000 D	(250)	ND	(5.0)	0.81 J	(5.0)
Bromodichloromethane	ND	(25)	0.94 J	(5.0)	ND	(5.0)
Chloroform	ND	(25)	4.1 J	(5.0)	1.1 J	(5.0)
Ethyl benzene	1600 D	(250)	ND	(5.0)	ND	(5.0)
Methylene chloride	11 J	(25)	3.6 J	(5.0)	2.8 J	(5.0)
Toluene	7.7 J	(25)	ND	(5.0)	ND	(5.0)
Xylenes	19 J	(25)	ND	(5.0)	ND	(5.0)
SW8240 - Volatile Organics, TIC List (ug/L)						
Naphthalene	270	()	ND	()	ND	()

NOTE: Table presents only constituents detected in groundwater at this site.
ND = Not Detected, at the reported detection limit.
@ = Measured result is less than five times the detection limit.
X = SW8080--Presence of analyte confirmed by second column analysis, but quantitation was not confirmed.
C = Presence and quantitation of analyte confirmed by second column analysis.
J = Detected below the detection limit.
D = Secondary dilution required for this analyte.
TIC = Tentatively identified compound.

Appendix A-2

Portion of *Site Investigation Report Waste Sites SS-06, SD-15, AOC-RR, and AOC-BBMS, Holloman Air Force Base, New Mexico*

Ebasco Services, Inc, and Groundwater Technology
October 1995

DRAFT FINAL
SITE INVESTIGATION REPORT
WASTE SITES SS-06, SD-15, AOC-RR, AND AOC-BBMS
HOLLOMAN AIR FORCE BASE, NEW MEXICO

Prepared for:

49 CES/CEVR
Holloman Air Force Base, NM

and

HQ ACC/ESVR
Langley Air Force Base, VA

Prepared by:

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Groundwater Technology
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2501 Yale Blvd., S.E.
Albuquerque, New Mexico 87106

Under Contract No. DACW-45-94-D-0003

Delivery Order 1, Work Authorization Directives 3, 5, 9

U.S. Army Corps of Engineers
Omaha District
Omaha, Nebraska

October 1995

HAFB-03\SI-TEXT.RPT

AOC-RR

Area of Concern - Railroad Building

TABLE 3-1
SOIL VAPOR SURVEY RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
MARCH 1995

Sample No.	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	TPH (ug/l)
AOC-RR-SG-01	0.10	0.24	0.06	0.26	0.66	<20
AOC-RR-SG-02	0.05	0.26	0.08	0.34	0.73	<20
AOC-RR-SG-03	<0.05	0.15	0.05	0.22	0.42	<20
AOC-RR-SG-04	<0.05	0.20	<0.05	0.19	0.39	<20
AOC-RR-SG-05	0.07	0.21	0.07	0.27	0.55	<20
AOC-RR-SG-06	0.07	0.24	0.07	0.28	0.66	<20
AOC-RR-SG-07	0.10	0.25	0.07	0.27	0.69	<20
AOC-RR-SG-08	0.07	0.18	0.06	0.24	0.55	<20
AOC-RR-SG-09	0.09	0.19	0.07	0.27	0.62	<20
AOC-RR-SG-10	0.06	0.23	0.08	0.33	0.70	<20
AOC-RR-SG-11	<0.05	0.17	0.06	0.23	0.46	<20
AOC-RR-SG-11DUP	0.06	0.19	<0.05	<0.05	0.25	<20
AOC-RR-SG-12	<0.05	0.17	0.05	0.21	0.43	<20
AOC-RR-SG-13	<0.05	0.14	0.06	0.19	0.39	<20
AOC-RR-SG-14	<0.05	0.21	0.07	0.29	0.57	<20
AOC-RR-SG-15	0.10	0.31	0.08	0.32	0.81	<20
AOC-RR-SG-16	0.58	0.51	0.10	0.31	1.50	<20
AOC-RR-SG-17	<0.05	0.11	<0.05	0.18	0.29	<20

TABLE 3-1 (Continued)
SOIL VAPOR SURVEY RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
MARCH 1995

Sample No.	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	TPH (ug/l)
AOC-RR-SG-18	<0.05	0.13	<0.05	0.12	0.25	<20
AOC-RR-SG-19	<0.05	0.15	0.06	0.22	0.43	<20
AOC-RR-SG-20	<0.05	0.20	0.08	0.33	0.61	<20
AOC-RR-SG-21	<0.05	0.15	<0.05	0.22	0.37	<20
AOC-RR-SG-22	0.05	<0.05	0.14	0.19	0.38	<20
AOC-RR-SG-22DUP	<0.05	0.16	<0.05	0.21	0.37	<20
AOC-RR-SG-23	0.07	0.24	0.08	0.37	0.76	<20
AOC-RR-SG-EQUIP. BLANK (3/21/95)	<0.05	0.18	0.06	0.30	0.54	<20
AOC-RR-SG-24	<0.05	0.16	0.06	0.29	0.51	<20
AOC-RR-SG-25	<0.05	0.17	0.06	0.28	0.51	<20
AOC-RR-SG-26	0.08	0.40	0.15	0.71	1.34	<20
AOC-RR-SG-27	<0.05	0.14	<0.05	0.22	0.36	<20
AOC-RR-SG-28	<0.05	0.17	0.06	0.27	0.50	<20
AOC-RR-SG-29	<0.05	0.14	<0.05	0.20	0.34	<20
AOC-RR-SG-29DUP	0.05	0.16	<0.05	<0.05	0.21	<20

[a]Samples analyzed for BTEX and TPH by EPA Methods Modified 5030/8020 and 8015.
ug/l = Micrograms per liter.
TPH = Total Petroleum Hydrocarbons as JP-4.
< = Indicates compound not detected at the stated reporting limit.

TABLE 3-2
GEOTECHNICAL SOIL ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
MARCH 1995

SAMPLE NO.	DEPTH (FT)	USCS IDENT	MOISTURE CONTENT (%wt.)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MEDIAN GRAIN SIZE (mm)
AOC-RR-SB-01-6-8	6-8	ML	23.9	29	26	3	0.0128
AOC-RR-SB-02-8-10	8-10	SM/SC	21.5	-	NON-PLASTIC	-	0.0890
AOC-RR-SB-03-4-6	4-6	ML	20.8	32	25	7	0.0294
AOC-RR-SB-04-2-4	2-4	SM/SC	22.5	-	NON-PLASTIC	-	0.0075
AOC-RR-SB-05-6-8	6-8	ML	35.2	38	33	5	0.0053
AOC-RR-SB-06-6-8	6-8	ML	29.6	35	33	2	0.0062

- = Not measured
USCS = Unified Soil Classification System
%wt = Weight percent
FT = Feet
mm = Millimeter

TABLE 3-3
SUMMARY OF SOIL ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
MARCH - APRIL 1995

CONSTITUENTS	COMPARATIVE CONCENTRATIONS		AOC-RR-SB01-6-8	AOC-RR-SB01-10-12	AOC-RR-SB02-2-4	AOC-RR-SB02-2-4D	AOC-RR-SB02-8-10	AOC-RR-SB03-4-6	AOC-RR-SB03-8-10	AOC-RR-SB04-2-4
	Background*	Risk-based Levels*								
SAMPLE DEPTH (feet)	–	–	6-8	10-12	2-4	2-4	8-10	4-6	8-10	2-4
VOLATILE ORGANICS - METHOD 8240 (ug/kg)										
All Constituents	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL PETROLEUM HYDROCARBONS - METHOD 8015 (mg/kg)	N/A	1000*	<20	<20	<20	<20	<20	<20	<20	<20
TAL METALS - METHODS 6000s AND 7000s (mg/kg)										
Barium	84	72,000	<100	<100	<100	<100	<100	170	63	<100
Calcium	250,000	N/A	160,000	130,000	170,000	170,000	140,000	140,000	130,000	130,000
Chromium	6.61	1,000,000	<15	<15	<15	<15	<15	<15	6.6	<15
Copper	4.84	38,000	<12	<12	<12	<12	<12	<12	5.0	<12
Iron	6,362	N/A	9,100	7,600	2,500	2,600	3,400	5,400	6,300	3,700
Lead	-2.32	400*	7.5	3.9	2.0	1.8	1.4	3.2	3.0	2.9
Nickel	5.61	20,000	<20	<20	<20	<20	<20	<20	8	<20
Vanadium	15.46	7,200	<25	<25	<25	<25	<25	<25	17	<25
Zinc	20.25	310,000	30	32	19	20	31	25	19	27

TABLE 3-3 (Continued)
SUMMARY OF SOIL ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
MARCH - APRIL 1995

CONSTITUENTS	COMPARATIVE CONCENTRATIONS		AOC-RR-SB04-6-8	AOC-RR-SB05-2-4	AOC-RR-SB05-6-8	AOC-RR-SB06-2-4	AOC-RR-SB06-6-8
	Background[a]	Risk-based Levels[b]					
SAMPLE DEPTH (feet)	--	--	6-8	2-4	6-8	2-4	6-8
VOLATILE ORGANICS - METHOD 8240 (ug/kg)							
All Constituents	N/A	N/A	ND	ND	ND	ND	ND
TOTAL PETROLEUM HYDROCARBONS - METHOD 8015 (mg/kg)	N/A	1000[c]	<20	<20	<20	<20	<20
TAL METALS - METHODS 6000s AND 7000s (mg/kg)							
Barium	84	72,000	<100	<100	<100	280	<100
Calcium	250,000	N/A	120,000	220,000	300,000	180,000	190,000
Chromium	6.61	1,000,000	<15	<15	<15	<15	<15
Copper	4.84	38,000	<12	<12	<12	<12	<12
Iron	6,362	N/A	4,600	1,200	6,700	6,700	3,100
Lead	-2.32	400[c]	2.3	1.3	3.8	2.6	6.9
Nickel	5.61	20,000	<20	<20	<20	<20	<20
Vanadium	15.46	7,200	<25	<25	<25	<25	<25
Zinc	20.25	310,000	24	64	41	26	60

TABLE 3-3 (Continued)
SUMMARY OF SOIL ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
MARCH - APRIL 1995

[m] *Basewide Background Study Holloman AFB* (Radian, 1993).

[n] EPA Region III Risk-based levels (R.L. Smith, November 1994).

[o] NMED USTB Correspondence to Holloman AFB, dated November 2, 1992.

[p] EPA Action Level for residential exposure.

ND = No compounds detected for method specified.

ug/kg = Micrograms per kilogram

N/A = Not applicable/not established

NA = Not analyzed

mg/kg = Milligrams per kilogram

TAL = Target Analyte List

< = Indicates compound not detected at the stated reporting limit.

TABLE 3-4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
APRIL 1995

ANALYTES	COMPARATIVE CONCENTRATIONS		AOC-RR-GP-01	AOC-RR-GP-02	AOC-RR-GP-03	AOC-RR-GP-04	AOC-RR-GP-05	AOC-RR-GP-05DUP	AOC-RR-GP-06	AOC-RR-GP-07	AOC-RR-GP-07D
	Background[illegible]	Risk-based[illegible]									
VOLATILE ORGANICS - METHOD 8240 (ug/l)											
Benzene	N/A	0.36	3,000	<5	<5	<5	36	23	870	700	780
1,2-Dichloroethane	N/A	0.12	380	<5	<5	9	190	170	440	<50	51
1,2-Dichloropropane	N/A	0.16	<250	<5	<5	<5	20	16	<50	<50	<50
Ethylbenzene	N/A	1,300	260	<5	<5	24	30	18	1,000	<50	<50
Toluene	N/A	750	1,200	<5	<5	<5	8	5	90	<50	<50
Xylenes	N/A	12,000	1,200	<5	<5	<5	49	35	560	120	180
TAL METALS - METHODS 6000s and 7000s (ug/l)											
Aluminum	N/A	37,000	19,000	<10,000	<10,000	12,000	12,000	NA	22,000	44,000	NA
Lead	19.9	N/A	<4.0	<4.0	<4.0	<4.0	<4.0	NA	<4.0	46	NA
Manganese	N/A	180	4,200	<750	2,000	2,900	8,700	NA	3,300	<1,500	NA
Zinc	253	11,000	9,300	<1,000	1,400	4,800	3,100	NA	<1,000	<2,000	NA
pH - METHOD 150.1	N/A	6-9	7.45	7.72	7.63	7.67	7.29	NA	7.25	7.20	7.17

TABLE 3-4 (continued)
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
APRIL 1995

ANALYTES	COMPARATIVE CONCENTRATION		AOC-RR-GP-08	AOCRR-GP-09	AOCRR-GP-11	AOC-RR-GP-12	AOC-RR-GP-12D	AOC-RR-GP-13	AOC-RR-GP-14	AOC-RR-GP-15	AOC-RR-GP-16
	Background*	Risk-based Level**									
VOLATILE ORGANICS - METHOD 8240 (ug/l)											
Benzene	N/A	0.36	<5	750	3,300	<1	<1	100	<1	<1	40
1,2-Dichloroethane	N/A	0.12	<5	85	280	<2	<2	<20	<2	<2	290
1,2-Dichloropropane	N/A	0.16	<5	<50	<250	<2	<2	<20	<2	<2	<4
Ethylbenzene	N/A	1,300	<5	<50	960	2	2	490	<1	<1	210
Toluene	N/A	750	<5	<50	<250	<5	<5	1,600	<5	<5	<10
Xylenes	N/A	12,000	<5	750	<250	5	6	3,200	3	<2	<4
TAL METALS - METHODS 6000s and 7000s (ug/l)											
Aluminum	N/A	37,000	53,000	38,000	<200	NA	NA	NA	NA	NA	NA
Lead	19.9	N/A	<20	<20	<20	NA	NA	NA	NA	NA	NA
Manganese	N/A	180	<1,500	<1,500	1,900	NA	NA	NA	NA	NA	NA
Zinc	253	11,000	<2000	<2,000	<20	NA	NA	NA	NA	NA	NA
pH - METHOD 150.1	N/A	6-9	7.35	7.64	7.39	6.78	NA	7.31	6.47	7.10	6.95

TABLE 3-4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS AT AOC-RR
RAILROAD BUILDING 80
HOLLOMAN AFB, NM
APRIL 1995

[m]*Basewide Background Study for Holloman AFB* (Radian, 1993).

[n]EPA Region III, Risk-Based Concentrations (R.L. Smith, November 8, 1994).

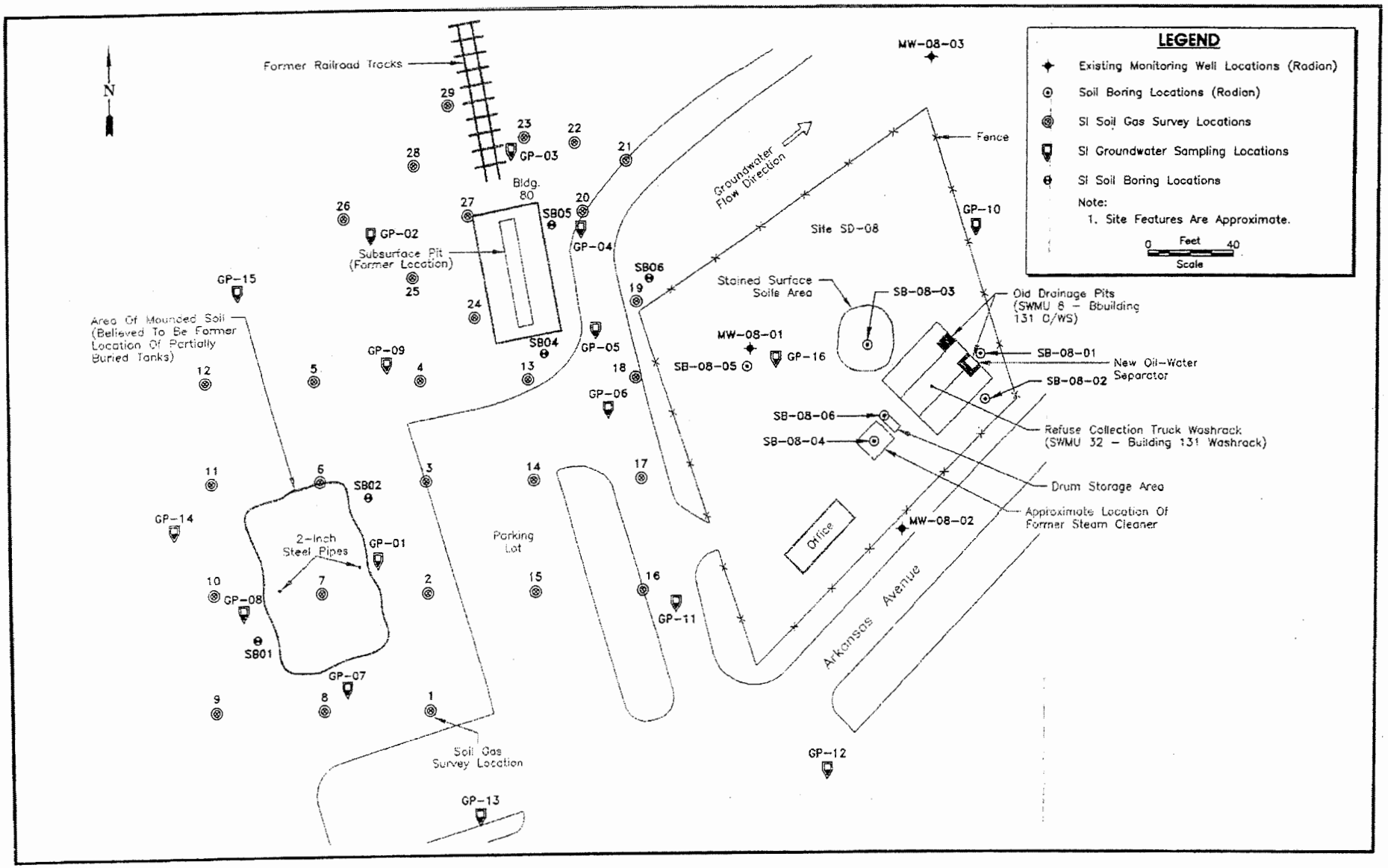
< = Indicates compound not detected at the stated reporting limit.

ug/l = Micrograms per Liter

NA = Not Analyzed

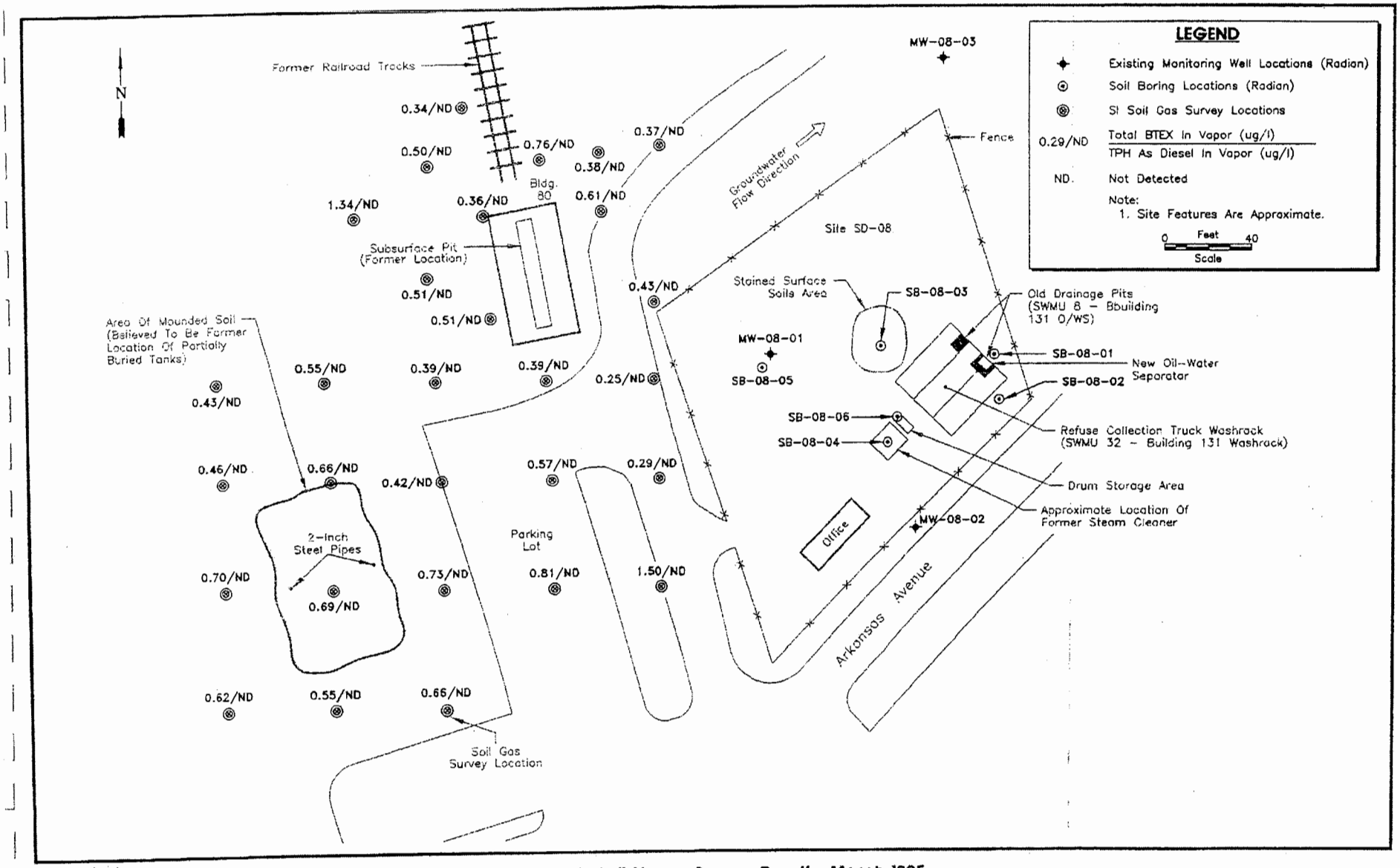
TAL = Target Analyte List

N/A = Not applicable/not established



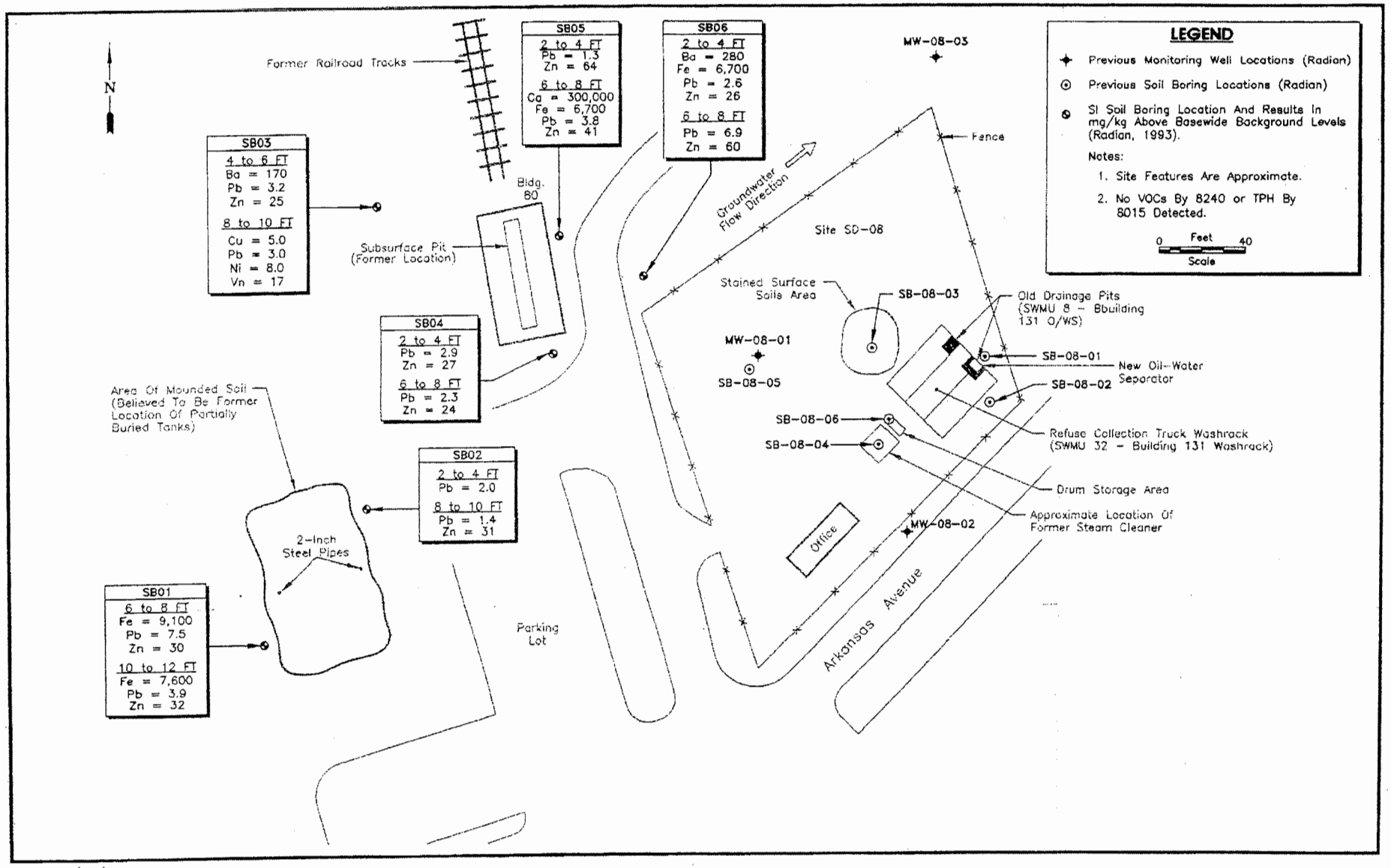
2201-ST3 (1:40)

Figure 3-1. Site Map
Site AOC-RR, Railroad Building 80



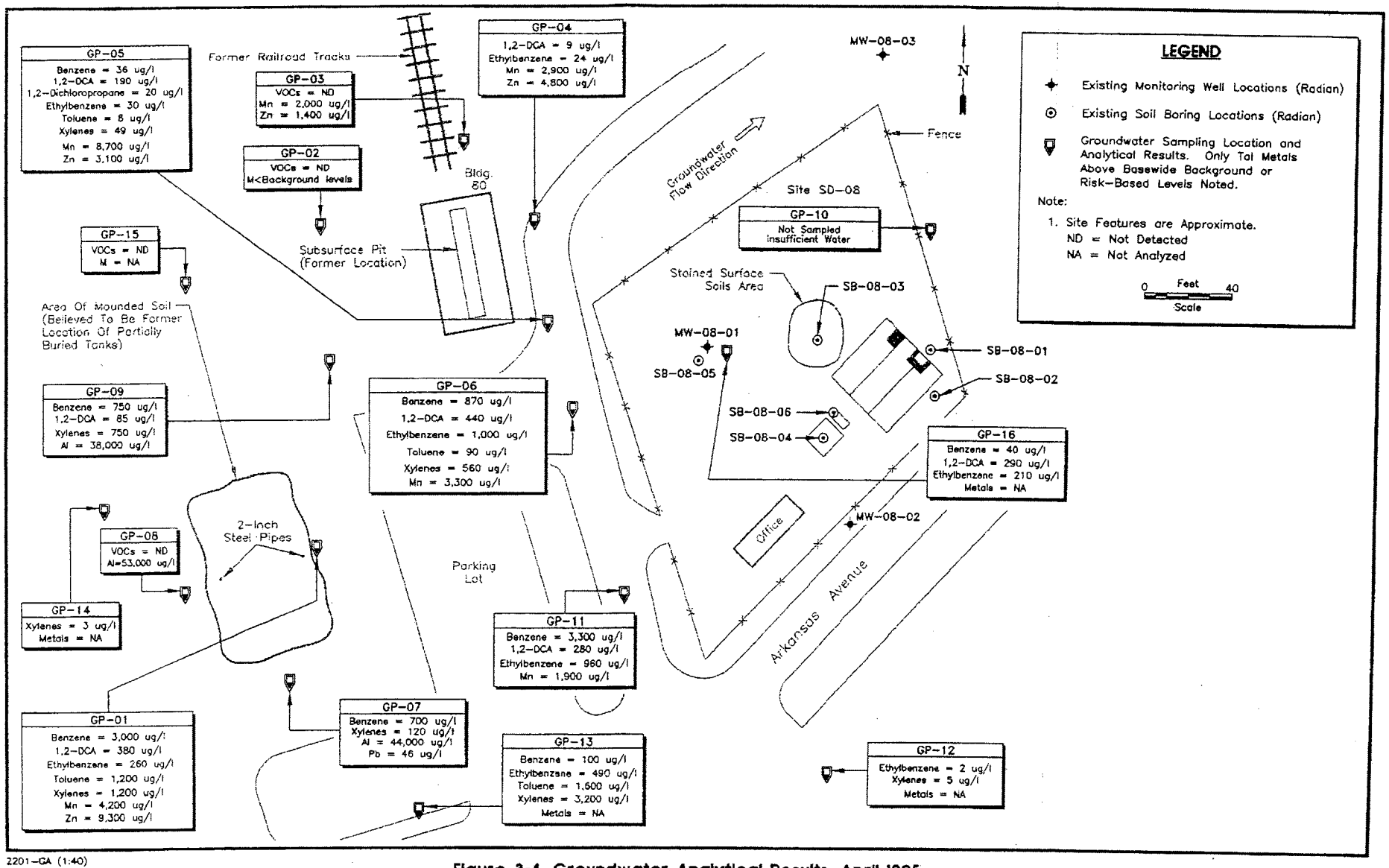
2201-SVS (1:40)

Figure 3-2. Soil Vapor Survey Results, March 1995
Site AOC-RR, Railroad Building 80



2201-SSRV (1:40)

Figure 3-3. Soil Sample Results, March - April 1995
Site AOC-RR, Railroad Building 80



2201-GA (1:40)

Figure 3-4. Groundwater Analytical Results, April 1995
Site AOC-RR Railroad, Building 80

Appendix A-3

Portion of *Feasibility Study (FS), Investigation, Study and Recommendation for 29 Waste Sites, Holloman Air Force Base, New Mexico*

Radian, December, 1993

DCN 93-269-004-16-11
RCN 269-004-16-08

FEASIBILITY STUDY (FS)

INVESTIGATION, STUDY AND RECOMMENDATION FOR 29 WASTE SITES HOLLOMAN AIR FORCE BASE, NEW MEXICO

DRAFT FINAL

Prepared for:

49 CES/CEV
Holloman Air Force Base, NM
and
HQ ACC/CEVR
Langley Air Force Base, VA

Prepared by:

Radian Corporation
8501 North Mopac Boulevard
Post Office Box 201088
Austin, Texas 78720-1088

Under Contract No. DACW45-91-D-0018 with:

U.S. Army Corps of Engineers
Omaha District
Omaha, Nebraska

December 1993

Table 2-5

Remedial Action Objectives, Site 8

Objective	Exposure Route and Receptor	Criteria	Contaminant	Cleanup Criteria
Prevent dermal contact with contaminated soil	Dermal contact with contaminated soil by on-Base workers	Acceptable health risk	4,4'-DDD	4000 μg/kg
			4,4'-DDE	3300 μg/kg
Prevent inhalation of contaminated soil	Inhalation of contaminated soil by on-Base workers	Acceptable health risk	4-4'-DDT	1100 μg/kg
			Chlordane	140 μg/kg
			Cadmium	0.290 mg/kg
			Lead	12.000 mg/kg
			Mercury	0.016 mg/kg

Table 2-6

Concentrations of Contaminants Above Cleanup Criteria, Site 8

		Metals (mg/kg)			Pesticides (µg/kg)			
Location	Depth (ft)	Cadmium	Lead	Mercury	4,4'-DDD	4,4'-DDE	4,4'-DDT	Chlordane
SB-08-01	0 - 2	0.920	50.000	0.490				950
SB-08-02	0 - 2	1.800	370.000	2.200	4000	5600	9300	4000
SB-08-03	0 - 2		19.000	0.110				230
SB-08-04	0 - 2			0.800				730
	2 - 4		18.000					
SB-08-06	2.5 - 4.5	0.920	69.900					
SB-08-10	0 - 2	3.710	50.600	0.297				263 B
SB-08-11	0 - 2			0.068				
	2 - 4	NA	NA	NA				238
SB-08-12	0 - 2	NA	NA	NA			2740	
SB-08-13	0 - 2	NA	NA	NA			4210	386

Note--Samples from SB-08-01 through SB-08-06 were collected during the RI. Samples from SB-08-07 through SB-08-20 were collected during the PDI.

NA--Not analyzed.
B--Analyte detected in method blank.

Table 2-7

Concentrations of Metals Analytes, Site 8

Location	Depth (ft)	Analyses (results in mg/kg)		
		SW6010--Cadmium	SW7421--Lead	SW7471--Mercury
SB-08-01	0 - 2	0.920	50.000	0.490
	6 - 8	ND	1.100	ND
SB-08-02	0 - 2	1.800	370.000	2.200
	5 - 7	ND	2.300	ND
SB-08-03	0 - 2	ND	19.000	0.110
	10 - 12	ND	0.300	ND
SB-08-04	0 - 2	ND	8.100	0.800
	2 - 4	ND	18.000	ND
SB-08-05	2 - 4	ND	2.000	ND
	6 - 8	ND	0.750	ND
SB-08-06	2.5 - 4.5	0.920	1.000	ND
	7.5 - 9.5	ND	1.300	ND
SB-08-07	0 - 2	ND	9.220	ND
SB-08-10	0 - 2	3.710	69.900	0.297
SB-08-11	0 - 2	ND	10.600	0.068
SB-08-12	2 - 4	ND	2.800	ND
SB-08-13	2 - 4	ND	9.110	ND
SB-08-14	2 - 4	ND	7.250	ND
SB-08-17	0 - 2	ND	7.440	ND
SB-08-19	0 - 2	ND	0.726	ND

Note--Samples from SB-08-01 through SB-08-06 were collected during the RI. Samples from SB-08-07 through SB-08-20 were collected during the PDI. Only those analytes included in the RAOs are listed.

ND--Not detected or detected below method detection limit.

Table 2-8

Concentrations of Pesticides Analytes, Site 8

Location	Depth (ft)	Analyses–SW8080 Pesticides (µg/kg)				
		4,4'-DDD	4,4'-DDE	4,4'-DDT	Chlordane	Heptachlor
SB-08-01	0 - 2	110.0	410.0	400.0	950.0	6.3
	6 - 8	ND	ND	ND	ND	0.3
SB-08-02	0 - 2	4000.0	5600.0	9300.0	4000.0	56.0
	5 - 7	1.0X	10.0	12.0	20.0	0.9
SB-08-03	0 - 2	28.0	86.0	26.0	230.0	ND
	10 - 12	ND	ND	ND	ND	0.9
SB-08-04	0 - 2	230.0	530.0	500.0	730.0	12.0
	2 - 4	ND	3.3	ND	ND	0.3
SB-08-05	2 - 4	ND	1.0	ND	ND	0.4
	6 - 8	ND	ND	ND	ND	ND
SB-08-06	2.5 - 4.5	3.2	ND	1.3	17.0	ND
	7.5 - 9.5	4.0	0.8X	2.0	32.0	ND
SB-08-07	0 - 2	56.4	52.1	46.7	89.5B	4.1
SB-08-08	0 - 2	9.4	8.1	5.6	85.9	3.3
SB-08-09	0 - 2	3.4	9.0	8.3	3.6	ND
SB-08-10	0 - 2	116.0	88.4	82.5	263.0B	8.9P
	2 - 4	1.5	1.4	2.6	2.9B	ND
SB-08-11	0 - 2	21.0	23.3	20.6	57.7B	493.0
	2 - 4	ND	ND	ND	238.0	343.0
SB-08-12	0 - 2	65.0P	1850.0	2740.0	51.1B	ND
	2 - 4	ND	12.0	7.9	ND	ND
SB-08-13	0 - 2	492.0P	2500.0	4210.0	386.0	7.8
	2 - 4	1.8P	1.8	15.6	23.4	2.5
	4 - 6	4.9	12.1	18.4	1.8	ND
SB-08-14	2 - 4	ND	2.9	3.7	1.2	ND
	4 - 6	1.0	5.9	6.0	2.9	ND
SB-08-15	0 - 2	1.7	6.1	3.5	3.4	ND
	2 - 4	1.9	4.0	4.0	2.2	ND
SB-08-16	0 - 2	1.5	10.2	8.1	ND	ND
SB-08-17	0 - 2	ND	106.0	29.6	ND	ND
	2 - 4	ND	8.9	4.4	ND	ND
SB-08-18	0 - 2	91.2	696.0	707.0	21.6B	ND
SB-08-19	0 - 2	1.3	1.2	3.4	2.8	ND
	2 - 4	ND	ND	ND	ND	ND
SB-08-20	0 - 2	ND	7.8	10.0	ND	ND
	2 - 4	ND	ND	ND	ND	ND

Note–Samples from SB-08-01 through SB-08-06 were collected during the RI. Samples from SB-08-07 through SB-08-20 were collected during the PDI. Only those analytes included in the RAOs are listed.

ND–Not detected, detected below method detection limit, or detected below reporting limit.
B–Analyte detected in method blank.
P–Analyte not confirmed.
X–Presence of analyte confirmed by 2nd column analysis, but quantitation not confirmed.

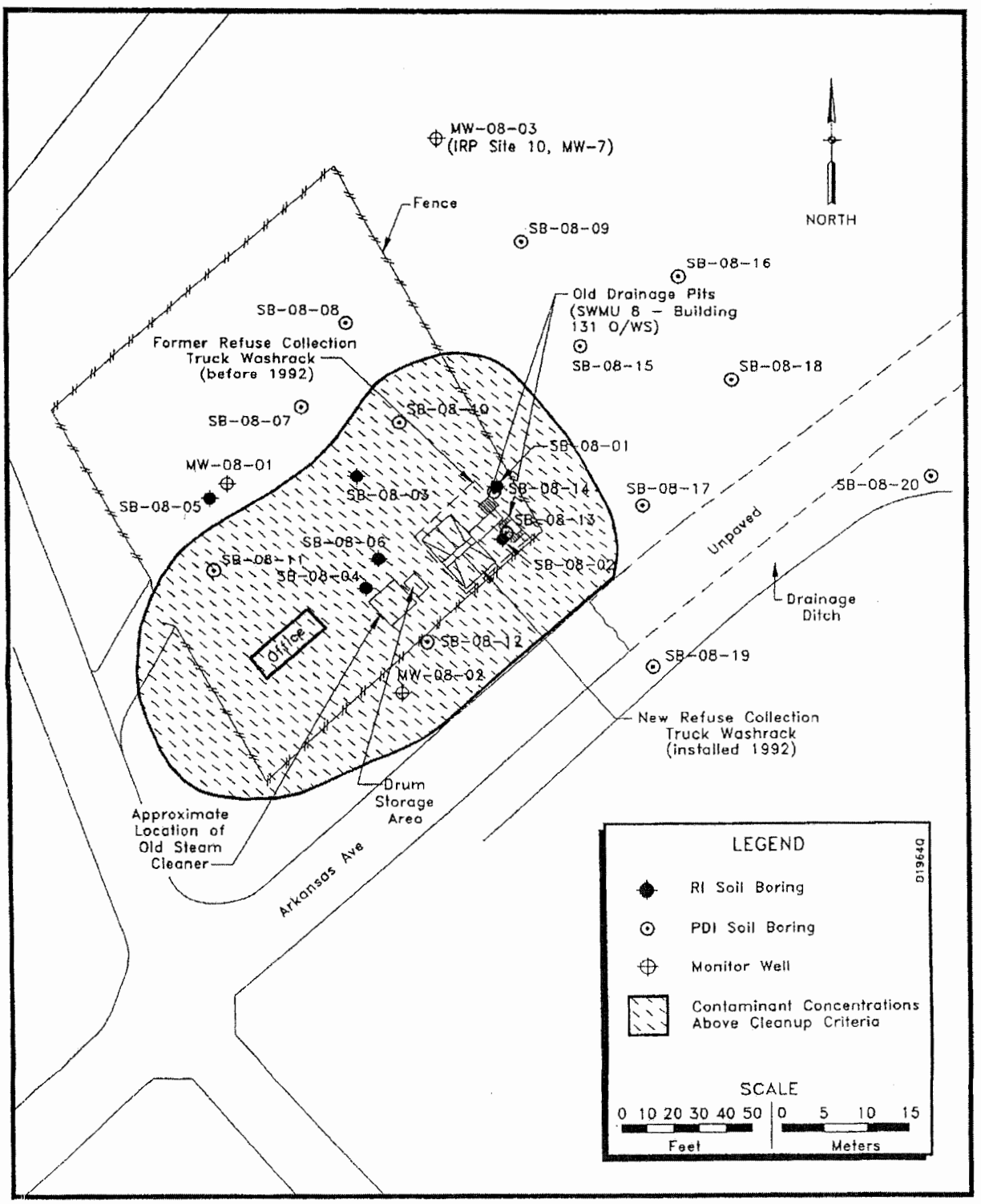


Figure 2-6. Area of Soil Above Cleanup Criteria, Site 8

Table F-4

Concentrations of Pesticides in Site 8 Soil Samples

Location:	SB-08-07	SB-08-08	SB-08-09	SB-08-10	SB-08-10	SB-08-11	SB-08-11	SB-08-12	SB-08-12
Sample ID: Depth:	SB-08-07-01 0.0 to 2.0 ft	SB-08-08-01 0.0 to 2.0 ft	SB-08-09-01 0.0 to 2.0 ft	SB-10-01-01 0.0 to 2.0 ft	SB-10-02-01 2.0 to 4.0 ft	SB-08-11-01 0.0 to 2.0 ft	SB-08-11-02 2.0 to 4.0 ft	SB-08-12-01 0.0 to 2.0 ft	SB-08-12-02 2.0 to 4.0 ft
Analyses									
SW8080-Pesticides (μg/kg)									
Aldrin	11.90B	5.47K	ND	ND	ND	ND	ND	2.08BP	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	9.52K	ND	21.20K	ND	ND	ND	1.01P	ND
delta-BHC	ND	5.81	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	2.44KB	ND	ND	2.74B	ND	6.51B	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	32.20B	18.10	1.25	106.00B	1.29B	11.10B	ND	21.10B	ND
gamma-Chlordane	57.30	67.80	2.30	157.00	1.64	46.60	238.00	30.00	ND
4,4'-DDD	56.40	9.35	3.38	116.00	1.51	21.00	ND	65.00P	ND
4,4'-DDE	52.10	8.10	8.96	88.40	1.40	23.30	ND	1850.00	12.00
4,4'-DDT	46.70	5.56	8.31	82.50	2.64	20.60	ND	2740.00	7.92
Dieldrin	ND	2.90KJ	ND	ND	ND	ND	ND	164.00K	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	4.47K	5.61K	ND	10.10P	ND	4.31K	ND	ND	ND
Endosulfan Sulfate	ND	ND	ND	37.60B	ND	ND	ND	ND	ND
Endrin	7.67KB	7.78K	ND	10.70BK	ND	7.33KB	ND	15.70BK	ND
Endrin Aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	4.14	3.29	ND	8.86P	ND	493.00	343.00	ND	ND
Heptachlor Epoxide	8.53B	3.90B	NR	6970.00 K	NR	5040.00 K	93600.00 K	10.50	ND
Isodrin	ND	6.29	ND	ND	ND	ND	ND	9.30	ND
Methoychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	ND	ND	ND	ND	ND	ND	ND	1.09P	ND

Table F-4

(Continued)

Location:	SB-08-07	SB-08-08	SB-08-09	SB-08-10	SB-08-10	SB-08-11	SB-08-11	SB-08-12	SB-08-12
Sample ID: Depth:	SB-08-07-01 0.0 to 2.0 ft	SB-08-08-01 0.0 to 2.0 ft	SB-08-09-01 0.0 to 2.0 ft	SB-10-01-01 0.0 to 2.0 ft	SB-10-02-01 2.0 to 4.0 ft	SB-08-11-01 0.0 to 2.0 ft	SB-08-11-02 2.0 to 4.0 ft	SB-08-12-01 0.0 to 2.0 ft	SB-08-12-02 2.0 to 4.0 ft
Analyses									
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW8080-TCLP Pesticides (µg/L)									
gamma-BHC	NA	NA	NA	0.13B	NA	NA	NA	NA	NA
Chlordane	NA	NA	NA	ND	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	ND	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	0.11	NA	NA	NA	NA	NA
Heptachlor Epoxide	NA	NA	NA	0.10	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	ND	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	ND	NA	NA	NA	NA	NA
Location:	SB-08-13	SB-08-13	SB-08-13	SB-08-14	SB-08-14	SB-08-15	SB-08-15	SB-08-16	SB-08-17
Sample ID: Depth:	SB-08-13-01 0.0 to 2.0 ft	SB-08-13-02 2.0 to 4.0 ft	SB-08-13-03 4.0 to 6.0 ft	SB-08-14-01 2.0 to 4.0 ft	SB-08-14-02 4.0 to 6.0 ft	SB-08-15-01 0.0 to 2.0 ft	SB-08-15-02 2.0 to 4.0 ft	SB-08-16-01 0.0 to 2.0 ft	SB-08-17-01 0.0 to 2.0 ft
Analyses									
SW8080-Pesticides (µg/kg)									
Aldrin	9.64	ND	ND	ND	ND	2.54BP	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	5.88K	1.51K	ND	ND
delta-BHC	8.48	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	72.40	ND	ND	ND	ND	1.47KB	ND	ND	ND
gamma-Chlordane	314.00	2.46	1.82	1.20	2.89	3.40	2.22	ND	ND
4,4'-DDD	492.00P	1.76P	4.93	ND	1.03	1.67	1.94	1.53	ND
4,4'-DDE	2500.00	15.60	12.10	2.89	5.86	6.10	4.02	10.20	106.00

Table F-4

(Continued)

Location:	SB-08-13	SB-08-13	SB-08-13	SB-08-14	SB-08-14	SB-08-15	SB-08-15	SB-08-16	SB-08-17
Sample ID: Depth:	SB-08-13-01 0.0 to 2.0 ft	SB-08-13-02 2.0 to 4.0 ft	SB-08-13-03 4.0 to 6.0 ft	SB-08-14-01 2.0 to 4.0 ft	SB-08-14-02 4.0 to 6.0 ft	SB-08-15-01 0.0 to 2.0 ft	SB-08-15-02 2.0 to 4.0 ft	SB-08-16-01 0.0 to 2.0 ft	SB-08-17-01 0.0 to 2.0 ft
Analyses									
4,4'-DDT	4210.00	23.40	18.40	3.69	6.02	3.48	3.98	8.06	29.60
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	60.80K	1.12K	1.40K	ND	ND	ND	ND	ND	1.11KB
Endrin Aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	7.75	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	18.40	1.16B	1.10B	ND	ND	2.42BP	ND	ND	ND
Isodrin	13.90	ND	ND	ND	ND	ND	ND	ND	ND
Methoychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	ND	ND	ND	ND	ND	ND	ND	17.90P	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW8080-TCLP Pesticides (μg/L)									
gamma-BHC	0.09B	ND	NA	NA	NA	NA	NA	NA	ND
Chlordane	ND	ND	NA	NA	NA	NA	NA	NA	ND
Endrin	ND	ND	NA	NA	NA	NA	NA	NA	ND
Heptachlor	0.05K	ND	NA	NA	NA	NA	NA	NA	0.04K
Heptachlor Epoxide	1.22P	0.03	NA	NA	NA	NA	NA	NA	ND
Methoxychlor	ND	ND	NA	NA	NA	NA	NA	NA	ND
Toxaphene	ND	ND	NA	NA	NA	NA	NA	NA	ND

Table F-4

(Continued)

Location:	SB-08-17	SB-08-17	SB-08-18	SB-08-19	SB-08-19	SB-08-20	SB-08-20		
Sample ID: Depth:	SB-08-17-01 2.0 to 4.0 ft Field Dup	SB-08-17-02 2.0 to 4.0 ft	SB-08-18-01 0.0 to 2.0 ft	SB-08-19-01 0.0 to 2.0 ft	SB-08-19-02 2.0 to 4.0 ft	SB-08-20-01 0.0 to 2.0 ft	SB-08-20-02 2.0 to 4.0 ft		
Analyses									
SW8080-Pesticides (μ g/kg)									
Aldrin	ND	ND	1.44BP	ND	ND	ND	ND		
alpha-BHC	ND	ND	ND	ND	ND	ND	ND		
beta-BHC	ND	ND	1.50K	ND	ND	ND	ND		
delta-BHC	ND	ND	ND	ND	ND	ND	ND		
gamma-BHC	ND	ND	ND	ND	ND	ND	ND		
Chlordane	ND	ND	ND	ND	ND	ND	ND		
alpha-Chlordane	ND	ND	9.15B	ND	ND	ND	ND		
gamma-Chlordane	ND	ND	12.40	2.83	ND	ND	ND		
4,4'-DDD	ND	ND	91.20	1.33	ND	ND	ND		
4,4'-DDE	105.0	8.90	696.00	1.20	ND	7.81	ND		
4,4'-DDT	0.27	4.41	707.00	3.43	ND	9.97	ND		
Dieldrin	ND	ND	148.00KE	ND	ND	ND	ND		
Endosulfan I	ND	ND	ND	ND	ND	ND	ND		
Endosulfan II	ND	ND	ND	ND	ND	ND	ND		
Endosulfan Sulfate	ND	ND	ND	ND	<DL	ND	<DL		
Endrin	ND	ND	10.40KB	ND	ND	ND	ND		
Endrin Aldehyde	ND	ND	ND	ND	ND	ND	ND		
Endrin Ketone	ND	ND	ND	ND	ND	ND	ND		
Heptachlor	ND	ND	ND	ND	ND	ND	ND		
Heptachlor Epoxide	ND	ND	ND	ND	ND	ND	ND		
Isodrin	ND	ND	2.70P	ND	ND	ND	ND		
Methoychlor	ND	ND	ND	ND	ND	ND	ND		

Table F-4

(Continued)

Location:	SB-08-17	SB-08-17	SB-08-18	SB-08-19	SB-08-19	SB-08-20	SB-08-20		
Sample ID: Depth:	SB-08-17-01 2.0 to 4.0 ft Field Dup	SB-08-17-02 2.0 to 4.0 ft	SB-08-18-01 0.0 to 2.0 ft	SB-08-19-01 0.0 to 2.0 ft	SB-08-19-02 2.0 to 4.0 ft	SB-08-20-01 0.0 to 2.0 ft	SB-08-20-02 2.0 to 4.0 ft		
Analyses									
Mirex	ND	ND	ND	ND	ND	ND	ND		
Toxaphene	ND	ND	ND	ND	ND	ND	ND		

B = Analyte detected in method blank.
E = Analyte concentration exceeded calibration range.
K = Confirmation unsuccessful. Analyte not detected on second column.
P = Analyte not confirmed. Ratio of results from primary and secondary GC columns greater than 3.
ND = Not detected, detected below detection limit, or detected below reporting limit.
NA = Not Analyzed.

Table F-5

Concentrations of Metals Analytes in Site 8 Soil Samples

Location:	SB-08-07	SB-08-10	SB-08-11	SB-08-12	
Sample ID: Depth:	SB-08-07-01 0.0 to 2.0 ft	SB-10-01-01 0.0 to 2.0 ft	SB-08-11-01 0.0 to 2.0 ft	SB-08-12-02 2.0 to 4.0 ft	
Analyses					
SW6010-Cadmium (mg/kg)	ND	3.710	ND	ND	
SW7421-Lead (mg/kg)	9.220	69.900	50.600	2.800	
SW7471-Mercury (mg/kg)	ND	0.297	0.068	ND	
SW6010-TCLP Metals (mg/L)					
Arsenic	NA	ND	NA	NA	
Barium	NA	0.148	NA	NA	
Cadmium	NA	ND	NA	NA	
Chromium	NA	0.028	NA	NA	
Lead	NA	ND	NA	NA	
Silver	NA	ND	NA	NA	
SW7470-TCLP Mercury (mg/L)	NA	ND	NA	NA	
SW7740-TCLP Selenium (mg/L)	NA	0.017	NA	NA	
Location:	SB-08-13	SB-08-13	SB-08-14	SB-08-17	SB-08-19
Sample ID: Depth:	SB-08-13-01 0.0 to 2.0 ft	SB-08-13-02 2.0 to 4.0 ft	SB-08-14-01 2.0 to 4.0 ft	SB-08-17-01 0.0 to 2.0 ft	SB-08-19-01 0.0 to 2.0 ft
Analyses					
SW6010-Cadmium (mg/kg)	NA	ND	ND	ND	ND
SW7421-Lead (mg/kg)	NA	9.110	7.250	7.440	0.726
SW7471-Mercury (mg/kg)	NA	ND	ND	ND	ND
SW6010-TCLP Metals (mg/L)					
Arsenic	ND	ND	NA	ND	NA
Barium	0.148	0.359	NA	0.388	NA
Cadmium	ND	ND	NA	ND	NA
Chromium	0.028	0.010	NA	0.023	NA
Analyses					
Lead	ND	ND	NA	ND	NA
Silver	ND	ND	NA	ND	NA
SW7470-TCLP Mercury (mg/L)	ND	ND	NA	ND	NA
SW7740-TCLP Selenium (mg/L)	0.029	ND	NA	ND	NA

ND = Not detected, detected below detection limit, or detected below reporting limit.

Appendix A-4

Portion of *Phase II RCRA Facility Investigation Report, Table I Solid Waste Management Units, Holloman Air Force Base, NM*

Foster Wheeler Environmental Corporation and Radian
June 1995

Headquarters, Air Combat Command
Langley Air Force Base,
Virginia

Draft Final

Phase II RCRA Facility Investigation Report

Table 1 Solid Waste Management Units

Volume I

June 1995

49th FIGHTER WING

49 CES/CEV
Holloman Air Force Base,
New Mexico

DCN 95-670-008-09

Draft Final

PHASE II RCRA FACILITY INVESTIGATION REPORT

TABLE 1 SOLID WASTE MANAGEMENT UNITS
HOLLOMAN AIR FORCE BASE, NM

VOLUME I

Prepared for:

49 CES/CEV
Holloman Air Force Base, NM

and

HQ ACC/CEVR
Langley Air Force Base, VA

Prepared by:

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Under Contract No. DACW45-94-D-0003, DO No. 02, WAD 03 with:

U.S. Army Corps of Engineers
Omaha District
Omaha, Nebraska

June 1995

SWMU 82

4.1 SWMU 82—Building 131 Washrack (IRP Site SD-08)

Organochlorine pesticides and metals were detected in the shallow soils at SWMU 82 (the Building 131 Truck Washrack); organochlorine pesticides were also detected in the groundwater during the 29 Sites RI. The associated risk evaluation concluded that pesticide concentrations in soil pose an occupational health risk. To mitigate this risk, the site entered into the FS/CMS process, which established cleanup criteria for health-based RAOs, estimated an area exceeding these cleanup criteria, and recommended the emplacement of an impermeable cap. The cap will eliminate the occupational risk by eliminating the dermal and inhalation exposure pathway. The Phase II RFI delineated the extent of organochlorine pesticide contamination in the groundwater. SWMU 82 is recommended for long-term groundwater monitoring to ensure that the remedial action is preventing further degradation of groundwater.

4.1.1 SWMU Description

SWMU 82 is located in the southeastern corner of the refuse collection yard near Building 131. The refuse collection yard is located southwest of the Petroleum, Oil, and Lubricant (POL) Storage Area and east of the Main Base area. The yard occupies approximately one-half acre and is surrounded by a chain-link fence. The yard is unpaved and has sparse vegetation only along the fence. The topography of the site is generally flat. Figure 1-2 shows the location of SWMU 82 on Holloman AFB, and Figure 4.1-1 shows the site layout.

The washrack was installed in 1942 and consisted of a rectangular concrete pad (approximately 1000 ft^2). Refuse collection trucks were washed with soap and water at the washrack. Base records indicate that pesticides were routinely sprayed inside the trucks during the 1970s for fly control; however, this practice ceased in 1982. Drains located at the north end of the washrack connected to a sewer line that carried wastewater to an oil/water separator near the northwest corner of the washrack. According to site personnel, it was common for the sewer line to clog, causing the sump and oil/water separator to overflow onto the surrounding soil. The washrack contained cracks in the concrete and was replaced in 1992 with a new washrack in the same location.

Geology and Hydrogeology

Three monitor wells were installed during the Phase II RFI to a depth of 16.5 ft bgl. Drilling logs from these wells indicate that the stratigraphy at SWMU 82 consists primarily of silty and clayey sands. A layer of poorly-graded sand interbedded with thin layers of caliche and clayey sands was encountered in the boring closest to the washrack. Drilling logs from the *29 Sites RI* (Radian, 1992b) also indicated the presence of a sand layer within the silty sand unit. This sand layer was not encountered in borings for the two wells installed further downgradient of the washrack. Phase II RFI drilling logs, presented in Appendix B.1, provide a detailed description of the site lithology.

Groundwater was encountered at 9 to 10 ft bgl at SWMU 82. Water level data collected during groundwater sampling at the site confirmed that the groundwater flow is to the northeast, as shown in Figure 4.1-2.

4.1.2 Phase I Activities

The site was identified in the *IRP Phase I Records Search* (CH2M Hill, 1983). As a result, the site was investigated under Phase I of the IRP as Site SD-08 in 1991. During the 29 Sites RI, soil samples were collected from six soil borings drilled in areas of potential contamination. Metals and organochlorine pesticides were detected in the surface soils at the site. The highest concentrations were detected in soil borings SB-08-01 and SB-08-02 drilled near the southeastern corner of the washrack. Groundwater samples were collected from three monitor wells. Organochlorine pesticides and VOCs were detected in the groundwater. The highest concentrations of organochlorine

pesticides were detected in the downgradient monitor well MW-08-03. Sample locations are shown in Figure 4.1-1.

A preliminary risk-based screen was conducted for SWMU 82 as part of the 29 Sites RI. The screen indicated that organochlorine pesticide concentrations in the soil pose an unacceptable risk to human health and the environment (Radian, 1992b).

Because surface soils at SWMU 82 pose an unacceptable human health risk, remedial action was recommended. In addition, further investigation was recommended to define the extent of organochlorine pesticides and metals contamination in the soil and organochlorine pesticides in the groundwater at the site.

After reviewing the *29 Sites RI* (Radian, 1992b), EPA Region VI issued a letter, received by the Base on 3 November 1992, requesting:

- The installation of additional soil borings to define the extent of soil contamination around the northwestern perimeter of the washrack;
- The installation of additional monitor wells to delineate the full extent of pesticide contamination in the groundwater;
- The definition of the source and extent of VOCs present in monitor well MW-08-01; and
- The notification of a newly identified SWMU and associated releases.

The highest concentrations of VOCs were detected in the upgradient monitor well MW-08-01. On the basis of site history and investigation results, it was concluded that VOC concentrations detected in the groundwater were not due to site activities (Radian, 1992b). Holloman AFB identified a new AOC and is currently investigating the area.

4.1.3 Phase II Activities

The following additional investigations were conducted at SWMU 82 to address EPA Region VI concerns and implement the site recommendations:

- The corrective measures study in 1992;
- The feasibility study in 1993; and
- The Phase II RFI in 1994.

To select the appropriate remedial action, SWMU 82 was entered into the FS/CMS process. The *CMS Plan* (Radian, 1992a) established health-based RAOs for soil contamination at the site. The RAOs for the site are to prevent an unacceptable health risk posed to site workers by dermal contact and inhalation of contaminated soils. The cleanup criteria are presented in Table 4.1-1.

To determine the vertical and lateral extent of soil contamination exceeding the cleanup criteria, a predesign investigation was conducted in 1993. During the predesign investigation, 14 soil borings were installed to the groundwater table. Soil boring locations are shown in Figure 4.1-1.

To determine the extent of organochlorine pesticides in the groundwater, the Phase II RFI was conducted in 1994. During the investigation, groundwater samples were collected from seven temporary standpipes, installed using a direct push technology (DPT) rig, and located downgradient of SWMU 82. The samples were submitted to the laboratory for organochlorine pesticide analysis. The results of the DPT groundwater samples were used to place three new monitor wells downgradient of the SWMU. Groundwater samples were collected from the three new wells (MW-08-05, MW-08-06, and MW-08-07) and two existing wells (MW-08-03 and HSTE-10-MW-01). The monitor well locations are shown in Figure 4.1-2.

Table 4.1-1
Remedial Action Objectives for SWMU 82

Objective	Contaminant	Cleanup Criteria (mg/kg)	Comment
Prevent dermal contact with contaminated soil above the cleanup criteria.	4,4-DDD	4.0	Contaminated soil below the cleanup criteria does not present an occupational health risk.
	4,4-DDE	3.3	
Prevent inhalation of contaminated soil above the cleanup criteria.	4,4-DDT	1.1	
	Cadmium	0.29	
	Chlordane	0.14	
	Lead	12	
	Mercury	0.016	

Field Screening Results

The groundwater samples collected from the DPT locations were analyzed for organochlorine pesticides using EPA Method SW8080.

Concentrations of delta-BHC and alpha-BHC were detected at or below the detection limits. A concentration of 4,4'-DDD was detected below the detection limit in location HP-08-06. A concentration of gamma-BHC was measured at the detection limit in location HP-08-02. The results of the field screening were used to place one monitor well (MW-05) immediately downgradient, and two wells further downgradient of the SWMU. The field screening results are presented in Table B.6-1 of Appendix B.6.

Analytical Results

Soil samples collected at SWMU 82 were analyzed for cadmium, lead, mercury, and organochlorine pesticides using EPA Methods SW6010, SW7421, SW7471, and SW8080, respectively. The analytical results were presented in the *FS Report* (Radian, 1993b) and Table 4.1-2 was adapted from that report.

The area exceeding the cleanup criteria at SWMU 82 was estimated to be 20,800 sq. ft and encompasses the southern half of the refuse yard (Radian, 1993b). The estimated extent is shown in Figure 4.1-1. The depth of affected soils was estimated to extend to 2 ft bgl, except in the immediate vicinity of soil borings SB-08-04, SB-08-06, and SB-08-11, where contamination was detected to 4 ft bgl. The greatest number of analytes and the highest concentrations were detected in soil borings SB-08-01 and SB-08-02 near the northeastern edge of the washrack. A total volume of 1540 yd^3 was estimated to exceed the cleanup criteria at SWMU 82. The recommended remedial alternative for achieving the RAOs is source containment by constructing an impermeable cap over the affected soils.

All groundwater samples collected from monitor wells were analyzed for organochlorine pesticides using EPA Method SW8080. The analytical results are presented in Table 4.1-3. The greatest number and highest concentrations of organochlorine pesticides were detected in the monitor wells (MW-08-03 and MW-08-05) located immediately downgradient of the SWMU. Monitor wells located further downgradient contained concentrations below detection limits. Concentrations of 4,4'-DDD and delta-BHC were detected below the detection limits in the samples. Similar concentrations of delta-BHC were detected in the laboratory method blanks, making its presence in

the samples uncertain and likely due to low-level laboratory contamination. Concentrations of heptachlor epoxide were detected in monitor wells MW-08-03 (0.16 µg/L) and MW-08-05 (0.033 µg/L).

4.1.4 Conclusions

The lateral and vertical extent of organochlorine pesticide and metal concentrations in soil has been delineated. Contaminant concentrations were found to be highest in the southeastern corner of the refuse yard near and around the washrack. The concentrations pose an occupational health risk, and the selected corrective action to mitigate the risk is source containment by the emplacement of an impermeable cap over the affected soils. Once the remedial action has been implemented, the exposure pathways to soil will be eliminated. As a result, the occupational health risk will also be eliminated.

Elevated organochlorine pesticide concentrations were detected only in the two monitor wells nearest the site.

4.1.5 Recommendations

Voluntary corrective action (VCA) is recommended for SWMU 82. The recommended impermeable cap should be constructed over the soil with contaminants exceeding the health-based cleanup criteria. SWMU 82 is also recommended for long-term groundwater monitoring (using existing wells) to ensure that the remedial action prevents degradation of groundwater.

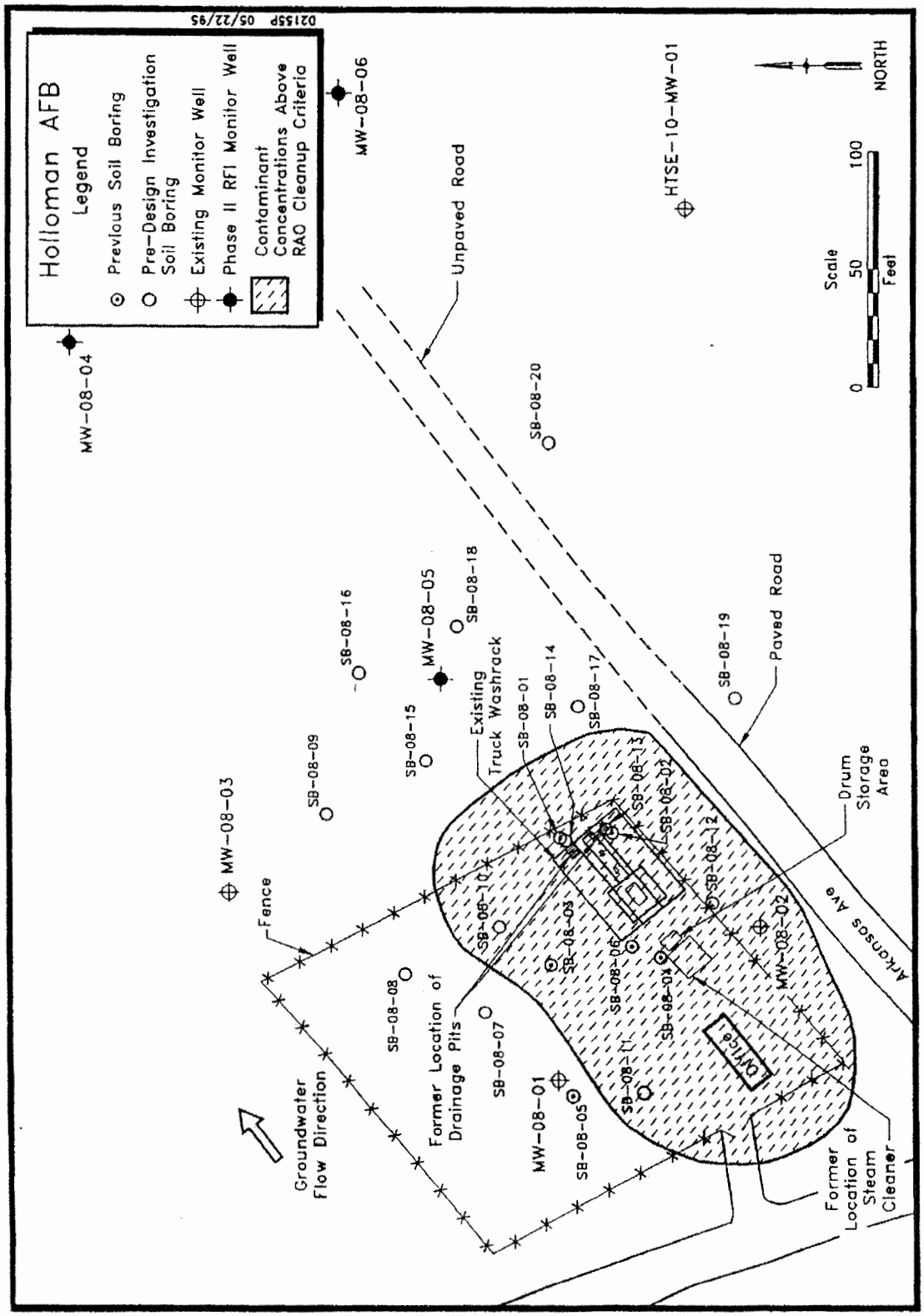

Figure 4.1-1. SWMU 82 - Soil Sample Locations

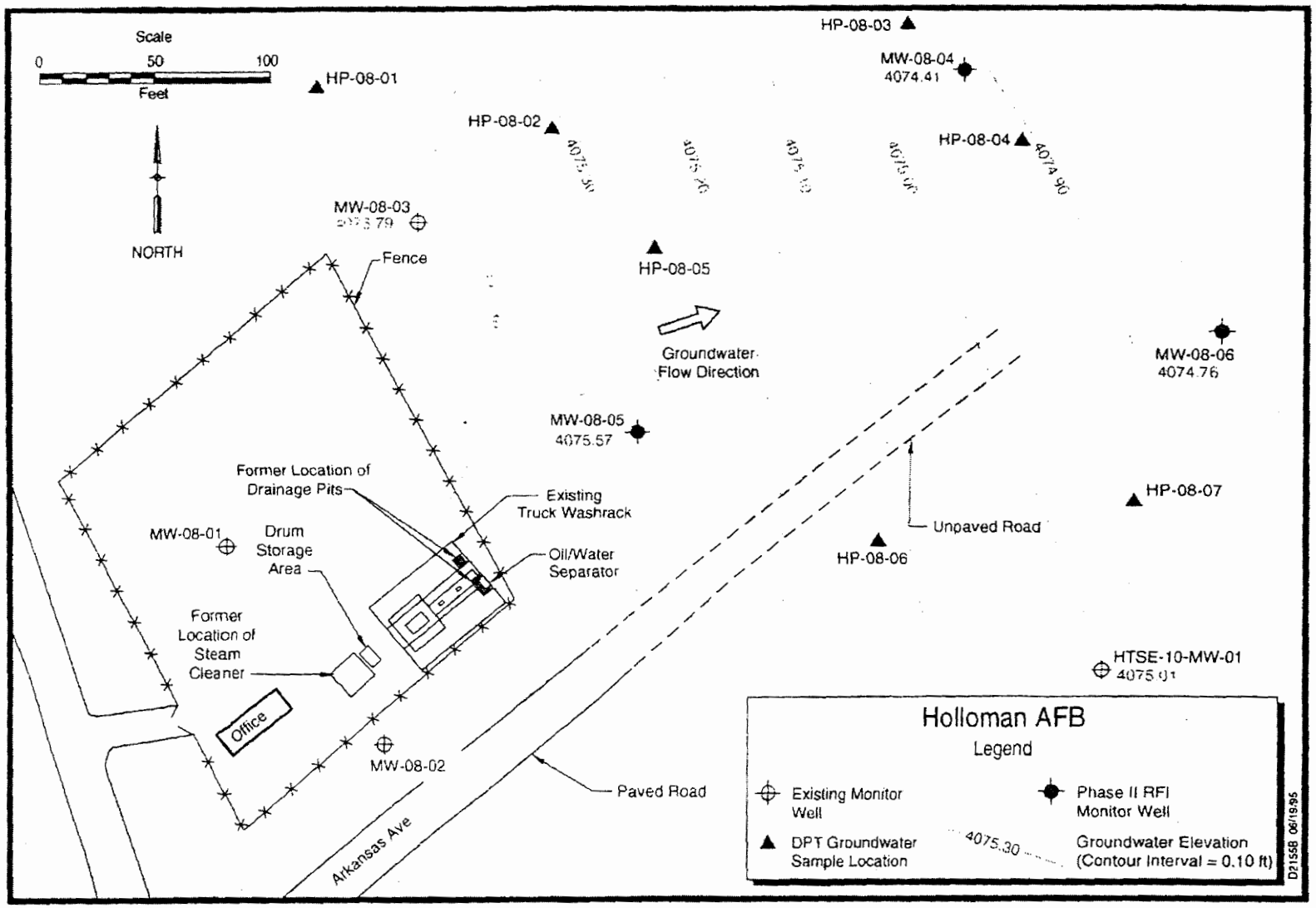

Figure 4.1-2. SWMU 82 - Groundwater Sample Locations

Table 4.1-2
Analytical Results for SWMU 82 Soil Samples

Location ID		SB-08-01	SB-08-01	SB-08-02	SB-08-02	SB-08-03	SB-08-03	SB-08-04	SB-08-04	SB-08-05
Total Depth (ft)		0 - 2	6 - 8	0 - 2	5 - 7	0 - 2	10 - 12	0 - 2	2 - 4	2 - 4
SW6010 (mg/kg)	Cadmium	0.92	ND	1.8	ND	ND	ND	ND	ND	ND
SW7421 (mg/kg)	Lead	50	1.1	370	2.3	19	0.3	8.1	18	2
SW7471 (mg/kg)	Mercury	0.49	ND	2.2	ND	0.11	ND	0.8	ND	ND
SW8080 (µg/kg)	4,4'-DDD	110	ND	4000	1.0X	28	ND	230	ND	ND
	4,4'-DDE	410	ND	5600	10	86	ND	530	3.3	1.0
	4,4'-DDT	400	ND	9300	12	26	ND	500	ND	ND
	Chlordane	950	ND	4000	20	230	ND	730	ND	ND
	Heptachlor	6.3	0.3	56	0.9	ND	0.9	12	0.3	0.4

Location ID		SB-08-05	SB-08-06	SB-08-06	SB-08-07	SB-08-08	SB-08-09	SB-08-10	SB-08-10	SB-08-11
Total Depth (ft)		6 - 8	2.5 - 4.5	7.5 - 9.5	0 - 2	0 - 2	0 - 2	0 - 2	2 - 4	0 - 2
SW6010 (mg/kg)	Cadmium	ND	0.92	ND	ND	NA	NA	3.71	NA	ND
SW7421 (mg/kg)	Lead	0.75	1	1.3	9.22	NA	NA	69.9	NA	10.6
SW7471 (mg/kg)	Mercury	ND	ND	ND	ND	NA	NA	0.297	NA	0.068
SW8080 (µg/kg)	4,4'-DDD	ND	3.2	4.0	56.4	9.4	3.4	116	1.5	21.0
	4,4'-DDE	ND	ND	.08X	52.1	8.1	9.0	88.4	1.4	23.3
	4,4'-DDT	ND	1.3	2.0	46.7	5.6	8.3	82.5	2.6	20.6
	Chlordane	ND	17	32	89.5B	85.9	3.6	263 B	2.9B	57.7B
	Heptachlor	ND	ND	ND	4.1	3.3	ND	8.9P	ND	493

Location ID		SB-08-11	SB-08-12	SB-08-12	SB-08-13	SB-08-13	SB-08-13	SB-08-14	SB-08-14	SB-08-15
Total Depth (ft)		2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6	0 - 2
SW6010 (mg/kg)	Cadmium	NA	NA	ND	NA	ND	NA	ND	NA	NA
SW7421 (mg/kg)	Lead	NA	NA	2.8	NA	9.11	NA	7.25	NA	NA
SW7471 (mg/kg)	Mercury	NA	NA	ND	NA	ND	NA	ND	NA	NA
SW8080 (µg/kg)	4,4'-DDD	ND	65P	ND	492	1.8P	4.9	ND	1.0	1.7
	4,4'-DDE	ND	1850	12.0	2500	1.8	12.1	2.9	5.9	6.1
	4,4'-DDT	ND	2740	7.9	4210	15.6	18.4	3.7	6.0	3.5
	Chlordane	238	51.1B	ND	386	23.4	1.8	1.2	2.9	3.4
	Heptachlor	343	ND	ND	7.8	2.5	ND	ND	ND	ND

Table 4.1-2
(Continued)

Location ID		SB-08-16	SB-08-17	SB-08-17	SB-08-17	SB-08-18	SB-08-19	SB-08-19	SB-08-20	SB-08-20
Total Depth (ft)		4	0-2	0	2	0	0	2	0	2
SW6010 (mg/kg)	Cadmium	NA	NA	ND	NA	NA	ND	NA	NA	NA
SW7421 (mg/kg)	Lead	NA	NA	7.44	NA	NA	0.726	NA	NA	NA
SW7471 (mg/kg)	Mercury	NA	NA	ND	NA	NA	ND	NA	NA	NA
SW8080 (µg/kg)	4,4'-DDD	1.9	1.5	ND	ND	91.2	1.3	ND	ND	ND
	4,4'-DDE	4.0	10.2	106	8.9	696	1.2	ND	7.8	ND
	4,4'-DDT	4.0	8.1	29.6	4.4	707	3.4	ND	10.0	ND
	Chlordane	2.2	ND	ND	ND	21.6B	2.8	ND	ND	ND
	Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: Adapted from the *FS* (Radian, 1993b).
Note: Samples from SB-08-01 through SB-08-06 were collected during the 29 Sites RI (Radian, 1992b). Soil samples from SB-08-07 through SB-08-20 were collected during the predesign investigation. Only those analytes included in the RAOs are listed.

ND = Not detected, detected below method detection limit, or detected below reporting limit.
B = Analyte detected in method blank.
P = Analyte not confirmed.
X = Presence of analyte confirmed by second-column analysis, but quantitation not confirmed.

Table 4.1-3
Analytical Results for SWMU 82 Groundwater Samples

Location ID		HSTF-10		MW-08-03		MW-08-04		MW-08-05		MW-08-06	
SW8080 (µg/L)	4,4'-DDD	0.014 J	(0.031)	0.046	(0.031)	ND	(0.031)	0.0042 J	(0.031)	ND	(0.031)
	4,4'-DDE	ND	(0.052)	0.099	(0.052)	ND	(0.052)	ND	(0.052)	ND	(0.052)
	Endosulfan I	ND	(0.021)	0.046	(0.021)	ND	(0.021)	ND	(0.021)	ND	(0.021)
	Endosulfan II	ND	(0.01)	0.035	(0.01)	ND	(0.01)	ND	(0.01)	ND	(0.01)
	Heptachlor epoxide	ND	(0.013)	0.16	(0.013)	ND	(0.013)	0.033	(0.013)	ND	(0.013)
	alpha-BHC	ND	(0.013)	ND	(0.013)	ND	(0.013)	ND	(0.013)	ND	(0.013)
	delta-BHC	0.0051 JB	(0.023)	ND	(0.023)	0.0065 JB	(0.023)	ND	(0.023)	0.003 JB	(0.023)
	gamma-BHC	ND	(0.013)	0.010 J	(0.013)	ND	(0.013)	ND	(0.013)	ND	(0.013)

B = Reported analyte concentration may be due to analytical background (or noise) from the laboratory.
J = Estimated concentration; analyte measured below the detection limit.
ND = Not detected. No instrument response for analyte or result less than zero.
( ) = Detection limit.

Appendix A-5

Portion of *Decision Documents Installation Restoration Program*

Radian Corporation
September 1995

Headquarters, Air Combat Command
Langley Air Force Base,
Virginia

Decision Documents

Installation Restoration Program

September 1995

49 CES/CEV
Holloman Air Force Base,
New Mexico

Declaration

Statutory Preference for Treatment as a Principal Element is Applicable and a Five-Year Review is Required

Site Name and Location
IRP Site SD-08 (RCRA SWMU 82)
Refuse Collection Truck Washrack
Holloman Air Force Base, New Mexico

Statement of Basis and Purpose
This decision document presents the selected remedial action for the referenced site chosen in accordance with CERCLA, as amended by SARA and, to the extent practicable, the National Contingency Plan. This decision is based on the administrative record file for this site.

The State of New Mexico concurs on the selected remedy.

Assessment of the Site
Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this decision document, may present a current or potential threat to public health, welfare, or the environment.

Description of the Selected Remedy
The selected remedy will reduce the risks associated with exposure to pesticide-contaminated soils at the site and will reduce the potential for infiltration of contaminants to groundwater. The major components of the selected remedy include the following:

- Placement of an impermeable cap over the affected soils;
- Installation of a chain-link fence to restrict access to the site;
- Annual inspection and maintenance of the cap; and
- Long-term groundwater monitoring to ensure the effectiveness of the remedial action.

Declaration Statement
The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practical and satisfies the statutory preferences for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Mark Weidler, Cabinet Secretary
New Mexico Environment Department

9/29/95
Date

Bruce Carlson
Brigadier General, USAF Commander

3 Nov 95
Date

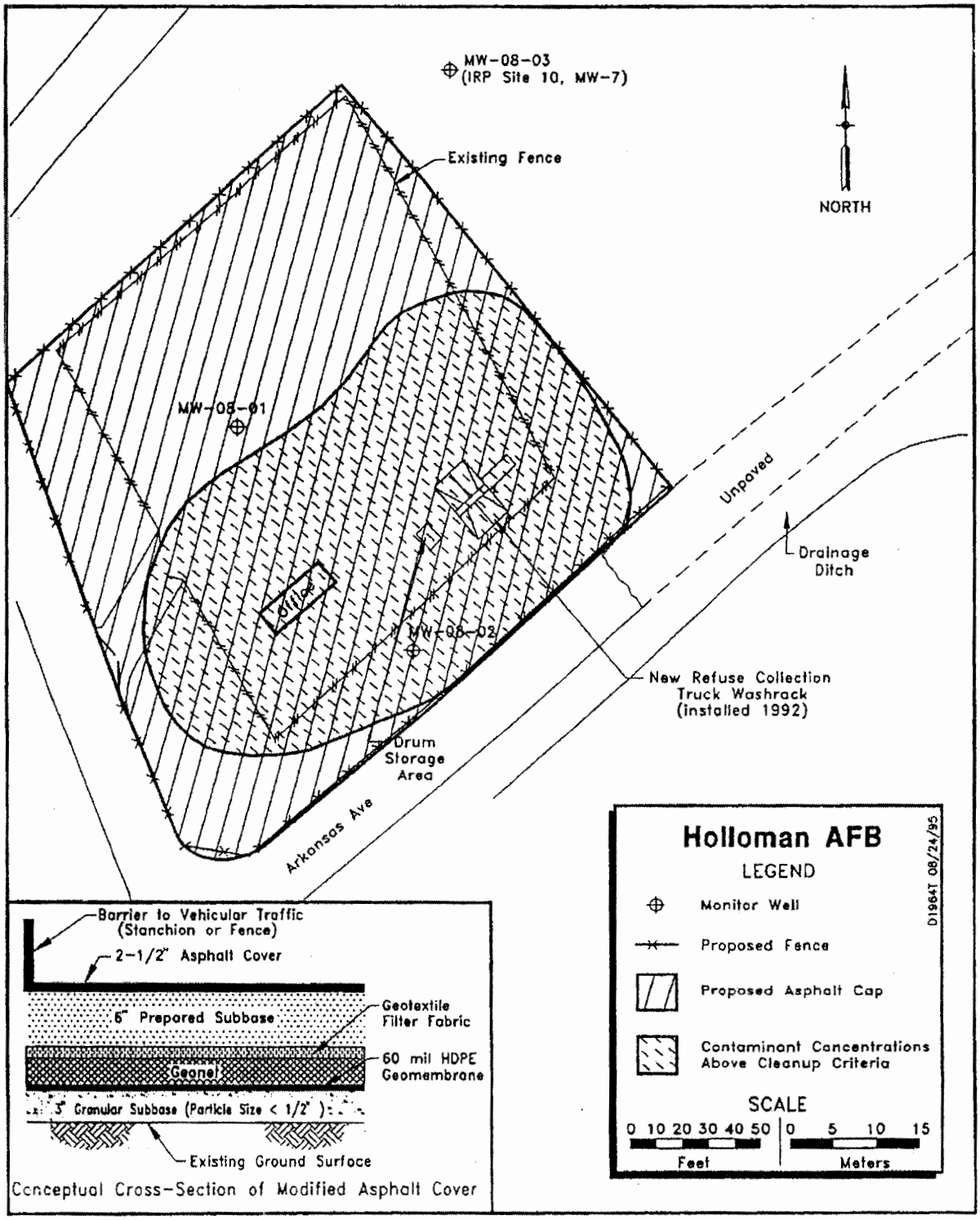

Figure 2-3 Map of Selected Remedial Action at Site SD-08

Appendix A-6

Portion of *2005 Long-Term Groundwater Monitoring Report, Holloman Air Force Base, New Mexico*

Bhate Environmental Associates, Inc.
May 2006

FINAL

2005 LONG-TERM GROUNDWATER MONITORING REPORT HOLLOMAN AIR FORCE BASE, NEW MEXICO

Prepared for:

49 CES/CEV
Holloman Air Force Base, NM

and

HQ ACC/CEVR
Langley Air Force Base, VA

Bhate Project Number: 9050343.01.02

May 2006

Prepared by:

Bhate Environmental Associates, Inc.
1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205

Table 5-2. Summary of Analytical Results from the 1995, 1997, 1999, 2001, 2003 and 2005 Long-Term Monitoring Programs at SD-08

Well Number	MW-08-01						MW-08-03 [4]					
Sampling Date	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05
VOCs[1] (µg/L)												
Acetone	ND	ND	<5	NA	NA	NS	ND	ND	<5	NA	NA	ND
Benzene	ND	3.7	2.0 J	NA	NA	NS	ND	3.5	<3	NA	NA	ND
Bromodichloromethane	ND	ND	<3	NA	NA	NS	ND	ND	<3	NA	NA	ND
Bromoform	ND	ND	<3	NA	NA	NS	ND	ND	<3	NA	NA	ND
sec-Butylbenzene[5]	ND	2.3 J	NA	NA	NA	NS	ND	ND	NA	NA	NA	ND
Chloroform	170	ND	<3	NA	NA	NS	ND	0.99 J	1.0 J	NA	NA	1.5
1,2-Dichloroethane	ND	130	**130 D**	<5	**73**	NS	ND	ND	<3	<5	0.69 (J)	ND
1,2-Dichloropropane	ND	3.5	6	NA	NA	NS	ND	ND	<3	NA	NA	ND
Ethylbenzene	ND	1.5	2.0 J	NA	NA	NS	ND	ND	<3	NA	NA	ND
Isopropylbenzene[5]	ND	1.5 J	NA	NA	NA	NS	ND	ND	NA	NA	NA	ND
Naphthalene[5]	ND	1.5 J	NA	NA	NA	NS	ND	ND	NA	NA	NA	ND
Toluene	ND	0.86 J	<3	NA	NA	NS	ND	ND	<3	NA	NA	ND
Metals[2] (µg/L)												
Arsenic	ND	ND	31.6 B (J)	12.8	9.34 J	NS	10	ND	13.1 B (J)	10.5	22.8	8.3 J
Barium	ND	28	16.9 B (J)	14.2	16.5	NS	ND	ND	15.5 B (J)	11.2	12	15.1 J
Cadmium	ND	ND	0.3 B	NA	NA	NS	ND	ND	<0.3	NA	NA	NA
Chromium	ND	ND	<0.6	NA	NA	NS	ND	ND	1.6 B	NA	NA	NA
Iron	ND	5,900	**6,620 (J)**	**6,500**	**7,805**	NS	ND	ND	<21	<1,000	77.1 J	3,800 U
Lead	31	ND	<1.5	<10 (UJ)	NA	NS	92	ND	<1.5	<10 (UJ)	NA	NA
Manganese	ND	2,600	**3,720**	**2,690 (J)**	**2,980**	NS	ND	ND	7.0 B	<10 (UJ)	11.2	20.9
Selenium	ND	ND	<2.2	NA	NA	NS	ND	ND	10.2 B (J)	NA	NA	96 U
Silver	ND	ND	<0.5	NA	NA	NS	ND	ND	1.2 B (J)	NA	NA	NA
Organochlorine Pesticides[3] (µg/L)												
4,4'-DDD	ND	ND	<0.1	NA	NA	NS	0.02	ND	<0.1	NA	NA	NA
4,4'-DDE	ND	ND	<0.1	NA	NA	NS	0.03	ND	<0.1	NA	NA	NA
gamma-Chlordane	ND	ND	0.078 P (J)	NA	NA	NS	NA	NA	<0.05	NA	NA	NA
Endosulfan sulfate	ND	ND	<0.1	NA	NA	NS	0.1	ND	<0.1	NA	NA	NA
Heptachlor epoxide	ND	ND	<0.05	NA	NA	NS	ND	ND	<0.05	NA	NA	NA
Filterable Residue (mg/L)												
TDS[6]	NA	NA	NA	NA	NA	NS	NA	NA	NA	NA	NA	**15,200**

Notes:

[1] Unless otherwise reported, no VOCs were detected using EPA Method 8260B.
(EPA Method 8260A was used to analyze for VOCs in the 1995 and 1997 programs.)

[2] Unless otherwise reported, no metals were detected using EPA Methods 6010B & 7470A.
(EPA Methods 6010 & 7000 were used to analyze for metals in the 1995 and 1997 programs.)

[3] Unless otherwise reported, no organochlorine pesticides were detected using EPA Method 8081A.
(EPA Method 8080A was used to analyze for organochlorine pesticides in the 1995 and 1997 programs.)

[4] Upgradient monitoring well

[5] Organic analyte not included in EPA Method 8260B (1999, 2001 and 2003)

[6] Total Dissolved Solids (TDS) were analyzed using EPA Method 160.1

CRDL - Contract-Required Detection Limit
IDL - Instrument Detection Limit
NA - Not analyzed
ND - Not detected at or above method reporting limit
NS - Not Sampled
VOCs - Volatile organic compounds
µg/L - Micrograms per liter
mg/L - Milligrams per liter

Laboratory Qualifiers--assigned as a result of laboratory data assessment procedures
B - Value less than CRDL but greater than or equal to IDL
D - Value derived from analysis of diluted sample
J - Estimated value; less than CRDL but greater than or equal to IDL
P - Results of dual-column GC technique differ by more than 25%; value is the lower of the two

EPA Qualifiers--assigned as a result of independent data validation
(J) - Estimated value based on QC criteria
(UJ) - Estimated non-detect based on QC criteria

2003/2005 Validation Qualifiers
J - Estimated value detected less than the CRDL but greater than the reporting limit
U - Compound was analyzed for but not detected. Analyte result was below the CRDL.
UJ - Estimated as a non-detect at the detection limit.

Bold values indicate analytes above New Mexico Groundwater Quality Standards.

Table 5-2. Summary of Analytical Results from the 1995, 1997, 1999, 2001, 2003 and 2005 Long-Term Monitoring Programs at SD-08

Well Number	MW-08-04						MW-08-05					
Sampling Date	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05
VOCs[1] (µg/L)												
Acetone	ND	ND	<5	NA	NA	ND	ND	ND	1.0 J	NA	NA	ND
Benzene	ND	ND	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
Bromodichloromethane	ND	0.61 J	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
Bromoform	ND	0.84 J	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
sec-Butylbenzene[5]	ND	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	ND
Chloroform	5.4	2.2 J	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
1,2-Dichloroethane	ND	ND	<3	<5	<1	ND	5.1	ND	<3	<5	<1	ND
1,2-Dichloropropane	ND	ND	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
Ethylbenzene	ND	ND	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
Isopropylbenzene[5]	ND	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	ND
Naphthalene[5]	ND	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	ND
Toluene	ND	ND	<3	NA	NA	ND	ND	ND	<3	NA	NA	ND
Metals[2] (µg/L)												
Arsenic	ND	ND	7.7 B (J)	5.9 B	11.1	6.9 J	ND	ND	5.1 B (J)	4.3 B	<10	7.1 J
Barium	ND	22	18.0 B (J)	14.1	12.3	17.2 J	ND	25	24.8 B (J)	26.1	34.3	41.2 J
Cadmium	ND	ND	<0.3	NA	NA	NA	ND	ND	<0.3	NA	NA	NA
Chromium	ND	ND	<0.6	NA	NA	NA	ND	ND	<0.6	NA	NA	NA
Iron	ND	ND	<21	<1,000	<200	1,500 U	ND	ND	<21	13.0 B	<200	824
Lead	82	ND	<1.5	<10 (UJ)	NA	NA	72	ND	<1.5	<10 (UJ)	NA	NA
Manganese	ND	ND	0.4 B	44.9 (J)	7.46 J	225	ND	260	235	4.4 B (J)	21.3	255
Selenium	ND	ND	2.7 B (J)	NA	NA	48 U	ND	ND	2.9 B (J)	NA	NA	96 U
Silver	ND	ND	<0.5	NA	NA	NA	ND	ND	<0.5	NA	NA	NA
Organochlorine Pesticides[3] (µg/L)												
4,4'-DDD	ND	ND	<0.1	NA	NA	NA	ND	ND	<0.1	NA	NA	NA
4,4'-DDE	ND	ND	<0.1	NA	NA	NA	ND	ND	<0.1	NA	NA	NA
gamma-Chlordane	NA	NA	<0.05	NA	NA	NA	NA	NA	<0.05	NA	NA	NA
Endosulfan sulfate	ND	ND	<0.1	NA	NA	NA	ND	ND	<0.1	NA	NA	NA
Heptachlor epoxide	ND	ND	<0.05	NA	NA	NA	0.04	ND	<0.05	NA	NA	NA
Filterable Residue (mg/L)												
TDS[6]	NA	NA	NA	NA	NA	6,610	NA	NA	NA	NA	NA	2,510

Notes:

[1] Unless otherwise reported, no VOCs were detected using EPA Method 8260B.
(EPA Method 8260A was used to analyze for VOCs in the 1995 and 1997 programs.)

[2] Unless otherwise reported, no metals were detected using EPA Methods 6010B & 7470A.
(EPA Methods 6010 & 7000 were used to analyze for metals in the 1995 and 1997 programs.)

[3] Unless otherwise reported, no organochlorine pesticides were detected using EPA Method 8081A.
(EPA Method 8080A was used to analyze for organochlorine pesticides in the 1995 and 1997 programs.)

[4] Upgradient monitoring well

[5] Organic analyte not included in EPA Method 8260B

[6] Total Dissolved Solids (TDS) were analyzed using EPA Method 160.1

CRDL - Contract-Required Detection Limit
IDL - Instrument Detection Limit
NA - Not analyzed
ND - Not detected at or above method reporting limit
NS - Not Sampled
VOCs - Volatile organic compounds
µg/L - Micrograms per liter
mg/L - Milligrams per liter

Laboratory Qualifiers--assigned as a result of laboratory data assessment procedures
B - Value less than CRDL but greater than or equal to IDL
D - Value derived from analysis of diluted sample
J - Estimated value; less than CRDL but greater than or equal to IDL
P - Results of dual-column GC technique differ by more than 25%; value is the lower of the two

EPA Qualifiers--assigned as a result of independent data validation
(J) - Estimated value based on QC criteria
(UJ) - Estimated non-detect based on QC criteria

2003/2005 Validation Qualifiers
J - Estimated value detected less than the CRDL but greater than the reporting limit.
U - Compound was analyzed for but not detected. Analyte result was below the CRDL.
UJ - Estimated as a non-detect at the detection limit.

Bold values indicate analytes above New Mexico Groundwater Quality Standards.

Table 5-2. Summary of Analytical Results from the 1995, 1997, 1999, 2001, 2003 and 2005 Long-Term Monitoring Programs at SD-08

Well Number	MW-08-06					
Sampling Date	Aug-95	Sep-97	Sep-99	Sep-01	Apr-03	Dec-05
VOCs[1] (µg/L)						
Acetone	NS	NS	NS	NS	NS	NS
Benzene	NS	NS	NS	NS	NS	NS
Bromodichloromethane	NS	NS	NS	NS	NS	NS
Bromoform	NS	NS	NS	NS	NS	NS
sec-Butylbenzene[5]	NS	NS	NS	NS	NS	NS
Chloroform	NS	NS	NS	NS	NS	NS
1,2-Dichloroethane	NS	NS	NS	NS	NS	NS
1,2-Dichloropropane	NS	NS	NS	NS	NS	NS
Ethylbenzene	NS	NS	NS	NS	NS	NS
Isopropylbenzene[5]	NS	NS	NS	NS	NS	NS
Naphthalene[5]	NS	NS	NS	NS	NS	NS
Toluene	NS	NS	NS	NS	NS	NS
Metals[2] (µg/L)						
Arsenic	NS	NS	NS	NS	NS	NS
Barium	NS	NS	NS	NS	NS	NS
Cadmium	NS	NS	NS	NS	NS	NS
Chromium	NS	NS	NS	NS	NS	NS
Iron	NS	NS	NS	NS	NS	NS
Lead	NS	NS	NS	NS	NS	NS
Manganese	NS	NS	NS	NS	NS	NS
Selenium	NS	NS	NS	NS	NS	NS
Silver	NS	NS	NS	NS	NS	NS
Organochlorine Pesticides[3] (µg/L)						
4,4'-DDD	NS	NS	NS	NS	NS	NS
4,4'-DDE	NS	NS	NS	NS	NS	NS
gamma-Chlordane	NS	NS	NS	NS	NS	NS
Endosulfan sulfate	NS	NS	NS	NS	NS	NS
Heptachlor epoxide	NS	NS	NS	NS	NS	NS
Filterable Residue (mg/L)						
TDS[6]	NS	NS	NS	NS	NS	**20,300**

Notes:

[1] Unless otherwise reported, no VOCs were detected using EPA Method 8260B.
(EPA Method 8260A was used to analyze for VOCs in the 1995 and 1997 programs.)

[2] Unless otherwise reported, no metals were detected using EPA Methods 6010B Trace & 7470A.
(EPA Methods 6010 & 7000 were used to analyze for metals in the 1995 and 1997 programs.)

[3] Unless otherwise reported, no organochlorine pesticides were detected using EPA Method 8081A.
(EPA Method 8080A was used to analyze for organochlorine pesticides in the 1995 and 1997 programs.)

[4] Upgradient monitoring well

[5] Organic analyte not included in EPA Method 8260B.

[6] Total Dissolved Solids (TDS) were analyzed using EPA Method 160.1

CRDL - Contract-required Detection Limit
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VOCs - Volatile organic compounds
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Laboratory Qualifiers--assigned as a result of laboratory data assessment procedures
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EPA Qualifiers--assigned as a result of independent data validation
(J) - Estimated value based on QC criteria
(UJ) - Estimated non-detect based on QC criteria

2003/2005 Validation Qualifiers
J - Estimated value detected less than the CRDL but greater than the reporting limit.
U - Compound was analyzed for but not detected. Analyte result was below the CRDL.
UJ - Estimated as a non-detect at the detection limit.

Bold values indicate analytes above New Mexico Groundwater Quality Standards.

APPENDIX B

SOIL BORING LOGS AND MONITORING WELL CONSTRUCTION DIAGRAMS

Appendix B-1

Radian, June 1992

DRILLING LOG

HOLE NO. SB-08-01

F2373

1. COMPANY NAME	RADIAN CORPORATION
2. DRILLING SUBCONTRACTOR	SOUTHWEST ENG INC
SHEET 1 OF 2 SHEETS	
3. PROJECT	HOLLOMAN AFB RI/FS FOR 29 SITES
4. LOCATION	08
5. NAME OF DRILLER	ALEX SANCHEZ
6. MANUFACTURER'S DESIGNATION OF DRILL	HOLLOW-STEM AUGER
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	BOREHOLE DIA.: 7.5"
8. HOLE LOCATION	672303.42(Y), 554783.76(X)
9. SURFACE ELEVATION	4085.81
10. DATE STARTED	7 AUG 91
11. DATE COMPLETED	7 AUG 91
12. OVERBURDEN THICKNESS	
15. DEPTH GROUNDWATER ENCOUNTERED	12.3 ft
13. DEPTH DRILLED INTO ROCK	
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	15 ft.
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %

22. DEPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
			GROUT	ACD

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	1	SILTY SAND: yellowish brown (10YR 5/4), very fine to fine, some gravel, moist, sub-rounded, roots, FILL. (SM)			91JULH008 -001, -001SS		3.0/5.0 ft -core barrel used
	2, 3, 4, 5	SANDY, CLAYEY SILT: brown (5YR 4/4), medium plasticity, low toughness, moist, some white gypsum spotting, homogeneous. (ML)	DH=2.0ppm BZ=0.0ppm				
	6, 7, 8	SILTY SAND: orange (10YR 8/2) to orange pink (5YR 8/4), caliche, interbedded sandy silt, firm, crumbly, moist, fine to very fine, poorly graded, very hard caliche layers. (SM)			91JULH008 -002, -002SS		5.0/5.0 ft
	9	SANDY SILT: light brown (5YR 6/2), mottled with tan zones, moist, crumbly, non-plastic. (ML)	HS=0.0ppm				

DRILLING LOG

HOLE NO. SB-08-01

PROJECT HOLLOMAN AFB RI/FS

INSPECTOR ACD

SHEET 2 OF 2 SHEETS

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	11	SILTY SAND: brown (5YR 6/4), interbedded caliche zones, fine to very fine, some mottling, similar to 6-9', subrounded. (SM)					4.0/5.0 ft
	12						
	13						water at 12.3 ft (foamy)
	14	SILTY SAND: light blueish-grey (5B 7/1), moist to wet, crumbly, poorly graded, very fine. (SM)	HS=0.0ppm				brown tint at 14' (petroleum?) clean at 15'
	15						TD= 15 ft
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						

DRILLING LOG

HOLE NO. SB-08-02

F2374

1. COMPANY NAME	RADIAN CORPORATION
2. DRILLING SUBCONTRACTOR	SOUTHWEST ENG INC
SHEET 1 OF 2 SHEETS	
3. PROJECT	HOLLOMAN AFB RI/FS FOR 29 SITES
4. LOCATION	08
5. NAME OF DRILLER	ART VALTIERRA
6. MANUFACTURER'S DESIGNATION OF DRILL	HOLLOW-STEM AUGER
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	BOREHOLE DIA.: 7.5"
8. HOLE LOCATION	672281.88(Y), 554785.86(X)
9. SURFACE ELEVATION	4086.26
10. DATE STARTED	7 SEP 91
11. DATE COMPLETED	7 SEP 91
12. OVERBURDEN THICKNESS	
15. DEPTH GROUNDWATER ENCOUNTERED	12 ft bgl
13. DEPTH DRILLED INTO ROCK	
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	15 ft.
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
						%

22. DEPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
			GROUT	ACD

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	1	SILTY SAND: brown (10YR 5/4), moist, organic, roots, small black stained zone, low plasticity, crumbly. (SM-SC)	BZ=1ppm		91JULH008 -003, -003SS		2.5/5.0 ft
	2, 3, 4, 5, 6	SANDY SILT: brown (5YR 3/4), moist, roots, medium plasticity, low toughness, firm, white (gypsum?) spotting (ML) Same as 1.5-6 ft in SB008-001.	DH=3ppm; BZ=1ppm DH=3.3ppm		91JULH008 -004, -004SS		5.0/5.0 ft
	7, 8, 9	SILTY SAND: brown (10YR 5/4), fine to very fine (maybe a sandy silt ?), mottled with both darker and lighter areas, moist, crumbly, similar to 5-9 ft in SB-008-001 but no caliche, gypsum crystal layers, present (SM)	HS=1.0ppm				5.0/5.0 ft

DRILLING LOG

PROJECT	HOLLOMAN AFB RI/FS	INSPECTOR	ACD	HOLE NO. SB-08-02	SHEET 2 OF 2 SHEETS

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	11	grades to brown (6YR 5/6), gypsum crystal layers. caliche present at 11 ft.					
	12						water at 12 ft
	13		HS=0.0ppm				
	14	SAND: very pale brown (10YR 7/4), moist to wet, fine to very fine, some medium, clean. (SP)	DH=1.8ppm				
	15						TD= 15.0 ft
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						

DRILLING LOG

HOLE NO. SB-08-03

F2375

1. COMPANY NAME	RADIAN CORPORATION
2. DRILLING SUBCONTRACTOR	SOUTHWEST ENG INC
SHEET 1 OF 2 SHEETS	
3. PROJECT	HOLLOMAN AFB RI/FS FOR 29 SITES
4. LOCATION	08
5. NAME OF DRILLER	ART VALTIERRA
6. MANUFACTURER'S DESIGNATION OF DRILL	HOLLOW-STEM AUGER
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	BOREHOLE DIA.: 7.5"
8. HOLE LOCATION	672307.50(Y), 554729.28(X)
9. SURFACE ELEVATION	4086.32
10. DATE STARTED	7 AUG 91
11. DATE COMPLETED	7 AUG 91
12. OVERBURDEN THICKNESS	
15. DEPTH GROUNDWATER ENCOUNTERED	12.7 ft bgl
13. DEPTH DRILLED INTO ROCK	
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	14 ft.
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	
18. GEOTECHNICAL SAMPLES	DISTURBED / UNDISTURBED
19. TOTAL NUMBER OF CORE BOXES	
20. SAMPLES FOR CHEMICAL ANALYSIS	VOC / METALS / OTHER (SPECIFY) / OTHER (SPECIFY) / OTHER (SPECIFY)
21. TOTAL CORE RECOVERY	%
22. DEPOSITION OF HOLE	BACKFILLED / MONITORING WELL / OTHER (SPECIFY): GROUT
23. SIGNATURE OF INSPECTOR	ACD

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	1	SANDY SILT: brown, low plasticity, moist, soft, crumbly. (ML)			91JULH008 -005, -005SS		
	2	SANDY SILT: yellow orange (10YR 8/6), moist, crumbly. (ML)					3.5/4.0 ft
	3						
	4	SILTY SAND: as above, subrounded. (SM)	DH=2.7ppm BZ=1.8ppm				5.0/5.0 ft
	5	changes to (10YR 5/4).					
	6						
	7	Laminated, no caliche					
	8						
	9	changes to yellowish-brown (5YR 6/4)					

DRILLING LOG

HOLE NO. SB-08-03

PROJECT HOLLOMAN AFB RI/FS

INSPECTOR ACD

SHEET 2 OF 2 SHEETS

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	11	Caliche at 10', some large layers			91JULH008 -006, -006SS		5.0/5.0 ft
	12	SAND: yellowish brown (10YR 5/4), wet, fine to medium, some caliche. (SP)	HS=0.0ppm				
	13						water at 12.7 ft
	14						chemical odor TD= 14 ft
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						

DRILLING LOG

HOLE NO. SB-08-04

1. COMPANY NAME	RADIAN CORPORATION
2. DRILLING SUBCONTRACTOR	SOUTHWEST ENG INC
SHEET 1 OF 1 SHEETS	
3. PROJECT	HOLLOMAN AFB RI/FS FOR 29 SITES
4. LOCATION	08
5. NAME OF DRILLER	ART VALTIERRA
6. MANUFACTURER'S DESIGNATION OF DRILL	HOLLOW-STEM AUGER
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	BOREHOLE DIA.: 7.5"
8. HOLE LOCATION	672261.97(Y), 554732.56(X)
9. SURFACE ELEVATION	4086.02
10. DATE STARTED	8 AUG 91
11. DATE COMPLETED	8 AUG 91
12. OVERBURDEN THICKNESS	
15. DEPTH GROUNDWATER ENCOUNTERED	
13. DEPTH DRILLED INTO ROCK	
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	8 ft.
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %

22. DEPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
			GROUT	TAC

a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
		FILL: composed of SANDY SILT: greyish-black (N2), organic chemical staining, grading below 0.3 ft.	HS=0.0ppm		91JULH008-007	6,3,6,8	2.0/2.0 ft
	1	SILTY SAND: moderate brown (5YR 4/4), soft, dry, fine to very fine. (SM)					
	2	SILT: yellowish-grey (5YR 7/2), gypsum, low plasticity, moist, crumbly, soft. (ML)	HS=0.0ppm		91JULH008-008 -008SS	8,5,5,5	2.0/2.0 ft
	3						
	4	SILTY SAND: light brown (5YR 5/6), soft, moist. (SM)					
	5	SANDY SILT: light brown (5YR 6/4), soft, moist to wet, fine to very fine, non-plastic. (ML)	HS=0.0ppm			3,3,3,7	1.8/2.0 ft split spoon wet when removed from hole
	6						
	7						
	8						TD= 8 ft
	9						

PROJECT HOLLOMAN AFB RI/FS FOR 29 SITES HOLE NO. SB-08-04

DRILLING LOG

HOLE NO. SB-08-05

F2427

1. COMPANY NAME	RADIAN CORPORATION
2. DRILLING SUBCONTRACTOR	SOUTHWEST ENG INC
SHEET 1 OF 2 SHEETS	
3. PROJECT	HOLLOMAN AFB RI/FS FOR 29 SITES
4. LOCATION	08
5. NAME OF DRILLER	ALEX SANCHEZ
6. MANUFACTURER'S DESIGNATION OF DRILL	HOLLOW-STEM AUGER
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	BOREHOLE DIA.: 7.5"
8. HOLE LOCATION	672298.5 (Y), 554672.4 (X)
9. SURFACE ELEVATION	4085.88
10. DATE STARTED	9 AUG 91
11. DATE COMPLETED	9 AUG 91
12. OVERBURDEN THICKNESS	
15. DEPTH GROUNDWATER ENCOUNTERED	10.5 ft bgl
13. DEPTH DRILLED INTO ROCK	
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	13 ft.
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	
18. GEOTECHNICAL SAMPLES	DISTURBED / UNDISTURBED
19. TOTAL NUMBER OF CORE BOXES	
20. SAMPLES FOR CHEMICAL ANALYSIS	VOC / METALS / OTHER (SPECIFY) / OTHER (SPECIFY) / OTHER (SPECIFY)
21. TOTAL CORE RECOVERY	%
22. DEPOSITION OF HOLE	BACKFILLED / MONITORING WELL / OTHER (SPECIFY): GROUT
23. SIGNATURE OF INSPECTOR	LEM

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
		FILL: angular gravel	HS=0.0ppm			28,42,14,8	1.6/2.0 ft
	1	SILTY SAND: moderate brown (5YR 4/4). (SM)					
	2	SILTY SAND: greyish-orange 10YR 7/4). (SM)	HS=0.0ppm		91JULH00B-009		2.0/2.0 ft
	3	SILTY SAND, as above: very pale orange (10YR 8/2). (SM)					
	4	SILTY SAND, as above: moist. (SM)				5,28,31,43	1.5/2.0 ft
	5						
	6	SILTY SAND, as above. (SM)			91JULH00B-010		2.0/2.0 ft
	7	SILTY SAND, as above: light brown (5YR 6/4). (SM)					
	8	SILTY SAND, as above: very pale orange (10YR 8/2). (SM)				18,18,10,19	
	9	SILTY SAND, as above: moderate yellowish-brown (10YR 5/4), grading to moderate brown (5YR 4/4), caliche, moist. (SM)					

DRILLING LOG

HOLE NO. SB-08-05

PROJECT HOLLOMAN AFB RI/FS

INSPECTOR LEM

SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
		SILTY SAND, as above: saturated. (SM)					
	11		C= 62.5ppm				
	12	SILTY SAND, as above. (SM)					1.0/2.0 ft chemical odor
	13						TD=13.0 ft
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						

PROJECT HOLLOMAN AFB RI/FS FOR 29 SITES

HOLE NO. SB-08-05

DRILLING LOG

HOLE NO. SB-08-06

F2428

1. COMPANY NAME	RADIAN CORPORATION
2. DRILLING SUBCONTRACTOR	SOUTHWEST ENG INC
SHEET 1 OF 2 SHEETS	
3. PROJECT	HOLLOMAN AFB RI/FS FOR 29 SITES
4. LOCATION	08
5. NAME OF DRILLER	ALEX SANCHEZ
6. MANUFACTURER'S DESIGNATION OF DRILL	HOLLOW-STEM AUGER
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	BOREHOLE DIA.: 7.5"
8. HOLE LOCATION	672273.8 (Y),554737.3 (X)
9. SURFACE ELEVATION	4086.24
10. DATE STARTED	9 AUG 91
11. DATE COMPLETED	9 AUG 91
12. OVERBURDEN THICKNESS	
15. DEPTH GROUNDWATER ENCOUNTERED	13.8 ft bgl
13. DEPTH DRILLED INTO ROCK	
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	15 ft.
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
		X	

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY %

22. DEPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
			GROUT	LEM

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
	1	FILL: angular gravel	HS=0.0ppm			5,9,10,7	1.5/2.0 ft
	2	SILTY SAND: moderate yellowish-brown (10YR 6/4). (SM)					
	3	SANDY SILT: light brown (5YR 6/4). (ML)	HS=0.9ppm DH=32.0ppm		91JULH008 -011	4,5,3,5	
	4						
	5	SILTY SAND: greyish-orange (10YR 7/4). with some darker and lighter mottling. (SM)	HS=0.3ppm DH=27ppm BZ=27ppm			7,10,13,17	
	6						
	7						
	8	SILTY SAND, very silty: light brown (5YR 5/6), caliche nodules increasing with depth. (SM)	HS=0.5ppm		91JULH008 -012	7,14,35,31	
	9						

PROJECT HOLLOMAN AFB RI/FS FOR 29 SITES HOLE NO. SB-08-06

DRILLING LOG

HOLE NO. SB-08-06

PROJECT HOLLOMAN AFB RI/FS

INSPECTOR LEM

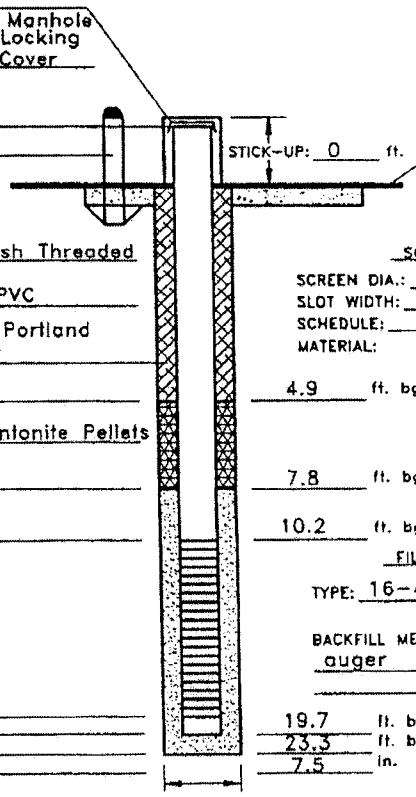
SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS/RECOVERY h
		SILTY SAND: moderate yellowish-brown (10YR 5/4). (SM)	HS=0.2ppm				
	11	SILTY SAND, as above: greyish-orange (10YR 7/4). (SM)					
	12						
	13			SB-008-006			geotechnical sample 12.5 to 15.0 ft
	14	saturated					
	15						TD= 15.0 ft
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						

ELEVATION GROUND WATER			PROJECT HOLLOMAN AFB RI/FS
DATE INSTALLED 07 AUG 91	STARTED 1400	COMPLETED 1800	LOCATION (Coordinates or Station) 08
ELEVATION TOP OF CASING 4085.87			SIGNATURE OF INSPECTOR/INSTALLER LEM
DRILLING METHOD HOLLOW STEM AUGER			WELL NO. (as shown on drawing: title and file number) MW-08-01

MONITORING WELL CONSTRUCTION DIAGRAM

(ALL MEASUREMENTS FROM GROUND SURFACE)



PROTECTIVE CASING: Steel Manhole with Locking

TYPE OF PROTECTIVE CASING: Well Cover

TOP OF WELL

PROTECTIVE POSTS

STICK-UP: 0 ft.

GROUND SURFACE

CASING DIAMETER: 2 in.

CONCRETE PAD MIN. 4.0 THICKNESS

TYPE OF PIPE JOINTS: Flush Threaded

TYPE OF BLANK CASING: PVC

BACKFILL/GROUT MIX ETC. Type I Portland Cement

TOP OF SEAL 4.9 ft. bgl

TYPE OF SEAL: 1/4" Bentonite Pellets

TOP OF FILTERPACK 7.8 ft. bgl

TOP OF SCREEN 10.2 ft. bgl

FILTER PACK

BOTTOM OF WELL 19.7 ft. bgl

BOTTOM OF BORING 23.3 ft. bgl

BORING DIAMETER 7.5 in.

LENGTH OF SOLID PIPE: 10.0 ft.

WELL SCREEN LENGTH: 9.5 ft.

SCREEN INFORMATION

SCREEN DIA.: 2 in.

SLOT WIDTH: 0.010 in.

SCHEDULE: 40

MATERIAL: ☒ PVC ☐ STAINLESS STEEL ☐ OTHER (DESCRIBE)

FILTERPACK MATERIAL

TYPE: 16-40 Colorado Silica Sand

BACKFILL METHOD: Tremie through auger

WELL DEVELOPMENT

METHOD: See well development record

TIME SPENT DEVELOPING:

VOLUME OF WATER REMOVED:

VOLUME OF WATER ADDED:

DESCRIPTION OF PREDEVELOPMENT WATER:

DESCRIPTION OF POST DEVELOPMENT WATER:

WATER LEVEL SUMMARY

WATER LEVEL MEASUREMENTS

DATE/TIME/LEVEL 08 AUG 91/0930/8.8 ft bmp

4 NOV 91/ /8.96 ft. bmp

DEPTH FROM TOP CASING AFTER DEVELOPMENT:

F2329

ELEVATION GROUND WATER			PROJECT HOLLOMAN AFB RI/FS
DATE INSTALLED 08 AUG 91	STARTED 0800	COMPLETED 1200	LOCATION (Coordinates or Station) 08
ELEVATION TOP OF CASING 4088.16			SIGNATURE OF INSPECTOR/INSTALLER LEM
DRILLING METHOD HOLLOW STEM AUGER			WELL NO. (as shown on drawing: title and file number) MW-08-02

MONITORING WELL CONSTRUCTION DIAGRAM

(ALL MEASUREMENTS FROM GROUND SURFACE)

PROTECTIVE CASING

TYPE OF PROTECTIVE CASING: Steel Lockbox

TOP OF WELL

PROTECTIVE POSTS

CASING DIAMETER: 2 in.

TYPE OF PIPE JOINTS: Flush Threaded

TYPE OF BLANK CASING: PVC

BACKFILL/GROUT MIX ETC. Type I Portland Cement

TOP OF SEAL

TYPE OF SEAL: 1/4" Bentonite Pellets

TOP OF FILTERPACK

TOP OF SCREEN

FILTER PACK

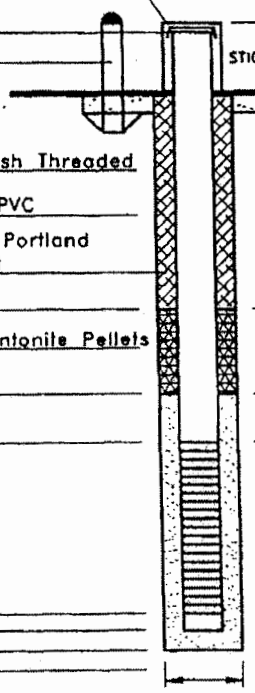
BOTTOM OF WELL

BOTTOM OF BORING

BORING DIAMETER

LENGTH OF SOLID PIPE: 9.0 ft.

WELL SCREEN LENGTH: 9.5 ft.



STICK-UP: 2.3 ft.

GROUND SURFACE

CONCRETE PAD MIN. 4.0 THICKNESS

SCREEN INFORMATION

SCREEN DIA.: 2 in.

SLOT WIDTH: 0.010 in.

SCHEDULE: 40

MATERIAL: ☒ PVC ☐ STAINLESS STEEL

1.6 ft. bgl ☐ OTHER (DESCRIBE)

4.6 ft. bgl

6.7 ft. bgl

FILTERPACK MATERIAL

TYPE: 16-40 Colorado Silica Sand

BACKFILL METHOD: Tremie through auger

16.7 ft. bgl

18.9 ft. bgl

7.5 in.

WELL DEVELOPMENT

METHOD: See well development record

TIME SPENT DEVELOPING:

VOLUME OF WATER REMOVED:

VOLUME OF WATER ADDED:

DESCRIPTION OF PREDEVELOPMENT WATER:

DESCRIPTION OF POST DEVELOPMENT WATER:

WATER LEVEL SUMMARY

WATER LEVEL MEASUREMENTS

DATE/TIME/LEVEL 11 AUG 91/0700/8.75 bmp

4 NOV 91/ /11.26 bmp

DEPTH FROM TOP CASING AFTER DEVELOPMENT:

F2330

Appendix B-2

Foster Wheeler/Radian, June 1995

DRILLING LOG

HOLE NO.	MW-08-04
1. COMPANY NAME	Radian Corporation
2. DRILLING SUBCONTRACTOR	Geo-Test, Inc.
SHEET 1 OF 2 SHEETS	
3. PROJECT	Holloman AFB Table I Phase II RFI
4. LOCATION	SWMU 82 / IRP Site 08
5. NAME OF DRILLER	John Maldonado
6. MANUFACTURERS DESIGNATION OF DRILL	CME - 55 ATV
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	5' x 2.6" ID Carbon Steel Continuous Sampler; 7.25" OD Hollow Stem Auger
8. HOLE LOCATION	
9. SURFACE ELEVATION	
10. DATE STARTED	11-7-94
11. DATE COMPLETED	11-7-94
12. OVERBURDEN THICKNESS	NA
15. DEPTH GROUNDWATER ENCOUNTERED	9.5 ft
13. DEPTH DRILLED INTO ROCK	NA
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	8.64 ft / 48 hrs
14. TOTAL DEPTH OF HOLE	17.5 ft
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	None
18. RISK ASSESSMENT SAMPLES	No
SAMPLE ID (S)	
DEPTH	
19. TOTAL NUMBER OF CORE BOXES	NA
20. NUMBER OF SAMPLES FOR CHEMICAL ANALYSIS	0
SW8020	
SW8080	
SW8240	
SW8270	
SW8015ME	
SW8015MP	
Metals	
EPA 418.1	
SOP-426	
SOP-427	
21. TOTAL CORE REC.	NA
22. DISPOSITION OF HOLE	Vertical
BACKFILL	
MONITORING WELL	Yes
OTHER (SPECIFY)	
23. SIGNATURE OF INSPECTOR	Tim Byers

ELEV. a	DEPTH b	GRAPHIC LOG c	DESCRIPTION OF MATERIALS d	SPLIT SPOON (ppm) e	HEAD-SPACE (ppm) f	BLOW CNTS g	% REC-OVERY h	ANALYTICAL SAMPLE NO. i
	0–4		SAND; Silty, poorly graded, fine-grained, very pale brown (10YR7/4), wet, loose, non-plastic, (SM) (SDFN).					
	4–8		SAND; Clayey, poorly graded, fine-grained, dark red (2.5YR4/6), moist, medium density, low plasticity, with gypsum crystals, (SC) (SDCL). Auger was advanced 5.0 ft., then continuous sampler was installed.	0			100	
	8–10		SAND; Silty, poorly graded, fine-grained, very pale brown (10YR7/3), wet, medium density, non-plastic, water encountered at 9 ft, (SM) (SDFN).					

PROJECT: Holloman AFB Table I Phase II RFI

HOLE NO.: MW-08-04

DRILLING LOG

HOLE NO. MW-08-04

1. COMPANY NAME: Radian Corporation

2. INSPECTOR: Tim Byers

SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b	GRAPHIC LOG c	DESCRIPTION OF MATERIALS d	SPLIT SPOON (ppm) e	HEAD-SPACE (ppm) f	BLOW CNTS g	% REC-OVERY h	ANALYTICAL SAMPLE NO. i
	10							
			SAND; Silty, poorly graded, fine-grained, very pale brown (10YR7/3), wet, medium density, non-plastic, with gypsum crystals, (SM) (SOFN).					
	12			0			100	
	14							
	16							
			Total Depth = 17.5 ft.					
	18							
	20							
	22							
	24							
	26							
	28							

PROJECT: Holloman AFB Table I Phase II RFI

HOLE NO.: MW-08-04

DRILLING LOG

1. COMPANY NAME: Radian Corporation	2. DRILLING SUBCONTRACTOR: Geo-Test, Inc.	HOLE NO. MW-08-05 / SHEET 1 OF 2 SHEETS
3. PROJECT: Holloman AFB Table I Phase II RFI	4. LOCATION: SWMU 82 / IRP Site 08	
5. NAME OF DRILLER: Victor Maldonado	6. MANUFACTURERS DESIGNATION OF DRILL: CME - 55	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: 5' x 2.6" ID Carbon Steel Continuous Sampler; 7.25" OD Hollow Stem Auger	8. HOLE LOCATION	
	9. SURFACE ELEVATION	
	10. DATE STARTED: 11-8-94	11. DATE COMPLETED: 11-8-94
12. OVERBURDEN THICKNESS: NA	15. DEPTH GROUNDWATER ENCOUNTERED: 10.0 ft	
13. DEPTH DRILLED INTO ROCK: NA	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: 8.88 ft / 24 hrs	
14. TOTAL DEPTH OF HOLE: 17.6 ft	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): None	

18. RISK ASSESSMENT SAMPLES	SAMPLE ID (S)	DEPTH	19. TOTAL NUMBER OF CORE BOXES
No			NA

20. NUMBER OF SAMPLES FOR CHEMICAL ANALYSIS	SW8020	SW8080	SW8240	SW8270	SW8015ME	21. TOTAL CORE REC.
0	SW8015MP	Metals	EPA 418.1	SOP-428	SOP-427	NA

22. DISPOSITION OF HOLE	BACKFILL	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
Vertical		Yes		Carolyn Cooper

ELEV. a	DEPTH b	GRAPHIC LOG c	DESCRIPTION OF MATERIALS d	SPLIT SPOON (ppm) e	HEAD-SPACE (ppm) f	BLOW CNTS g	% REC-OVERY h	ANALYTICAL SAMPLE NO. i
			SAND; Silty, poorly graded, very fine-grained, reddish yellow (7.5YR6/6), moist, firm, (SM) (SDSL).	0			100	
			Very pale brown (10YR8/3), dry, very hard, caliche layer; cemented .					
	2		SAND; Poorly Graded, very fine-grained, reddish yellow (7.5YR7/6), moist, medium density, (SP) (SDVF).					
	4			0			100	
			SAND; Clayey, poorly graded, very fine-grained, strong brown (7.5YR5/6), moist, hard, with gypsum crystals, (SC) (SDCL).					
	6		Very pale brown (10YR8/3), moist, very loose, caliche layer, cemented.					
	8		SAND; Poorly Graded, very fine-grained, very pale brown (10YR7/4), moist to wet, medium density, (SP) (SDVF).				100	

0 2 4 6 8 10

PROJECT: Holloman AFB Table I Phase II RFI HOLE NO.: MW-08-05

DRILLING LOG

1. COMPANY NAME	2. INSPECTOR	HOLE NO.
Radian Corporation	Carclyn Cooper	MW-08-05
		SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b	GRAPHIC LOG c	DESCRIPTION OF MATERIALS d	SPLIT SPOON (ppm) e	HEAD-SPACE (ppm) f	BLOW CNTS g	% REC-OVERY h	ANALYTICAL SAMPLE NO. i
			water at 16 ft.					
	12						100	
			SAND; Poorly Graded, very fine-grained, gray (10YR5/1), moist to wet, medium density, with gypsum crystals, (SP) (SDVF).					
			SAND; Poorly Graded, very fine-grained, very pale brown (10YR7/4), moist to wet, medium density, with gypsum crystals, (SP) (SDVF).					
	14		SAND; Poorly Graded, very fine-grained, light brown (7.5YR6/4), wet, dense, cemented, breaks along bedding planes, (SP) (SDVF).				100	
			SAND; Clayey, poorly graded, very fine-grained, yellowish red (5YR5/6), wet, hard, with gypsum crystals, (SC) (SDCL).					
	16		SAND; Poorly Graded, fine-grained, reddish yellow (7.5YR6/6), wet, medium density, (SP) (SDFN).					
			Total Depth = 17.6 ft.					
	18							
	20							
	22							
	24							
	26							
	28							

PROJECT: Holloman AFB Table 1 Phase II RFI

HOLE NO.: MW-08-05

DRILLING LOG

HOLE NO.	MW-08-06
1. COMPANY NAME	Radian Corporation
2. DRILLING SUBCONTRACTOR	Geo-Test, Inc.
SHEET	1 OF 2 SHEETS
3. PROJECT	Holloman AFB Table I Phase II RFI
4. LOCATION	SWMU 82 / IRP Site 08
5. NAME OF DRILLER	John Maldonado
6. MANUFACTURERS DESIGNATION OF DRILL	CME - 55 ATV
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT	5' x 2.6" ID Carbon Steel Continuous Sampler; 7.25" OD Hollow Stem Auger
8. HOLE LOCATION	
9. SURFACE ELEVATION	
10. DATE STARTED	11-8-94
11. DATE COMPLETED	11-8-94
12. OVERBURDEN THICKNESS	NA
15. DEPTH GROUNDWATER ENCOUNTERED	9.0 ft
13. DEPTH DRILLED INTO ROCK	NA
16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED	8.54 ft / 48 hrs
14. TOTAL DEPTH OF HOLE	17.5 ft
17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)	None
18. RISK ASSESSMENT SAMPLES	No
SAMPLE ID (S)	
DEPTH	
19. TOTAL NUMBER OF CORE BOXES	NA
20. NUMBER OF SAMPLES FOR CHEMICAL ANALYSIS	0
SW8020	
SW8080	
SW8240	
SW8270	
SW8015ME	
SW8015MP	
Metals	
EPA 418.1	
SOP-426	
SOP-427	
21. TOTAL CORE REC.	NA
22. DISPOSITION OF HOLE	Vertical
BACKFILL	
MONITORING WELL	Yes
OTHER (SPECIFY)	
23. SIGNATURE OF INSPECTOR	Tim Byers

ELEV. a	DEPTH b	GRAPHIC LOG c	DESCRIPTION OF MATERIALS d	SPLIT SPOON (ppm) e	HEAD-SPACE (ppm) f	BLOW CNTS g	% REC-OVERY h	ANALYTICAL SAMPLE NO. i
	2		SAND; Silty, poorly graded, fine-grained, very pale brown (10YR7/4), wet, loose, non-plastic, (SM) (SDFN).					
	4		SAND; Clayey, poorly graded, fine-grained, yellowish red (5YR5/6), moist, medium density, low plasticity, with trace gypsum, (SC) (SDCL).					
	6		Auger was advanced 5.0 ft., then continuous sampler was installed.	0			100	
	8		SAND; Silty, poorly graded, fine-grained, very pale brown (10YR7/3), wet, medium density, non-plastic, (SM) (SDFN).					
▼			water at 9 ft.					

0 2 4 6 8 10

PROJECT: Holloman AFB Table I Phase II RFI

HOLE NO.: MW-08-06

DRILLING LOG

HOLE NO. MW-08-06

1. COMPANY NAME: Radian Corporation

2. INSPECTOR: Tim Byers

SHEET 2 OF 2 SHEETS

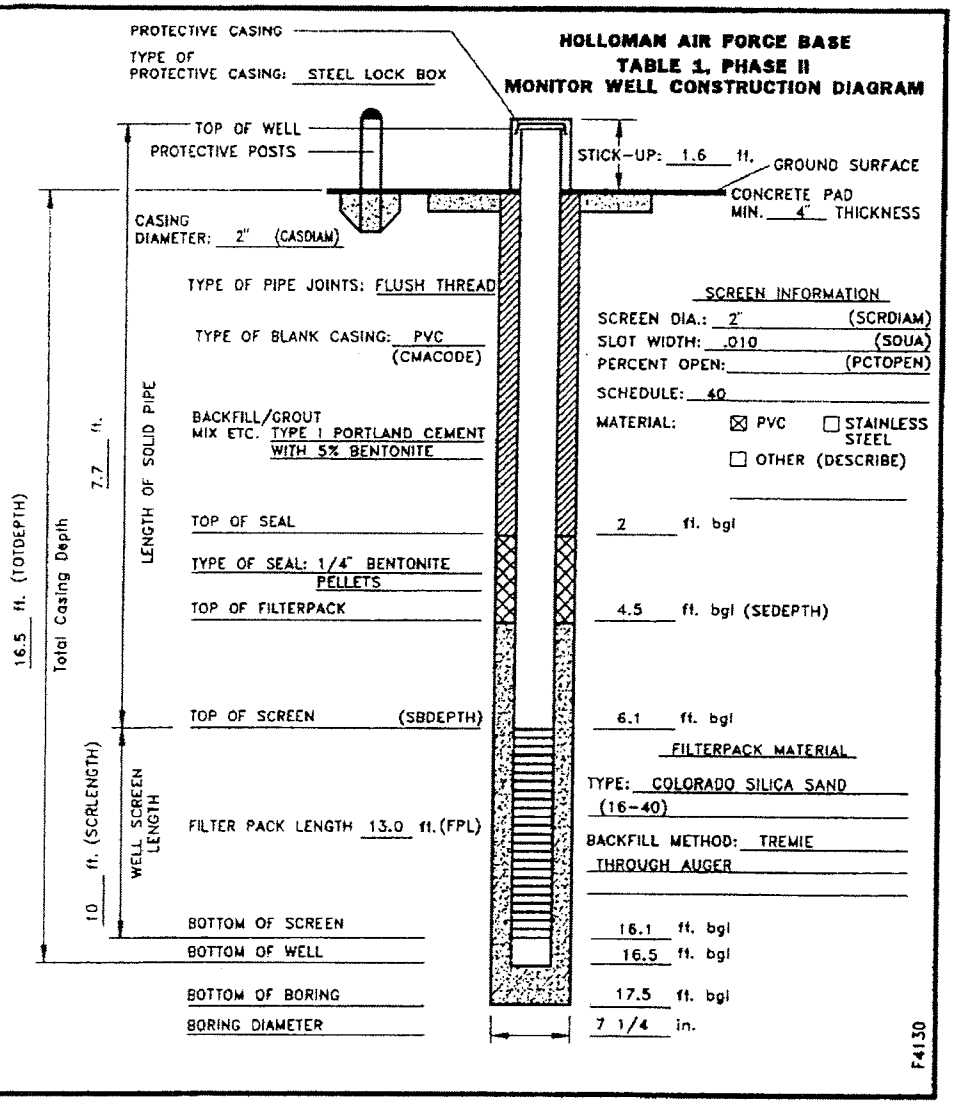
ELEV. a	DEPTH b	GRAPHIC LOG c	DESCRIPTION OF MATERIALS d	SPLIT SPOON (ppm) e	HEAD-SPACE (ppm) f	BLOW CNTS g	% REC-OVERY h	ANALYTICAL SAMPLE NO. i
	12			0			80	
	14							
	16			0			100	
	18		Total Depth = 17.5 ft.					
	20							
	22							
	24							
	26							
	28							

PROJECT: Holloman AFB Table I Phase II RFI

HOLE NO.: MW-08-06

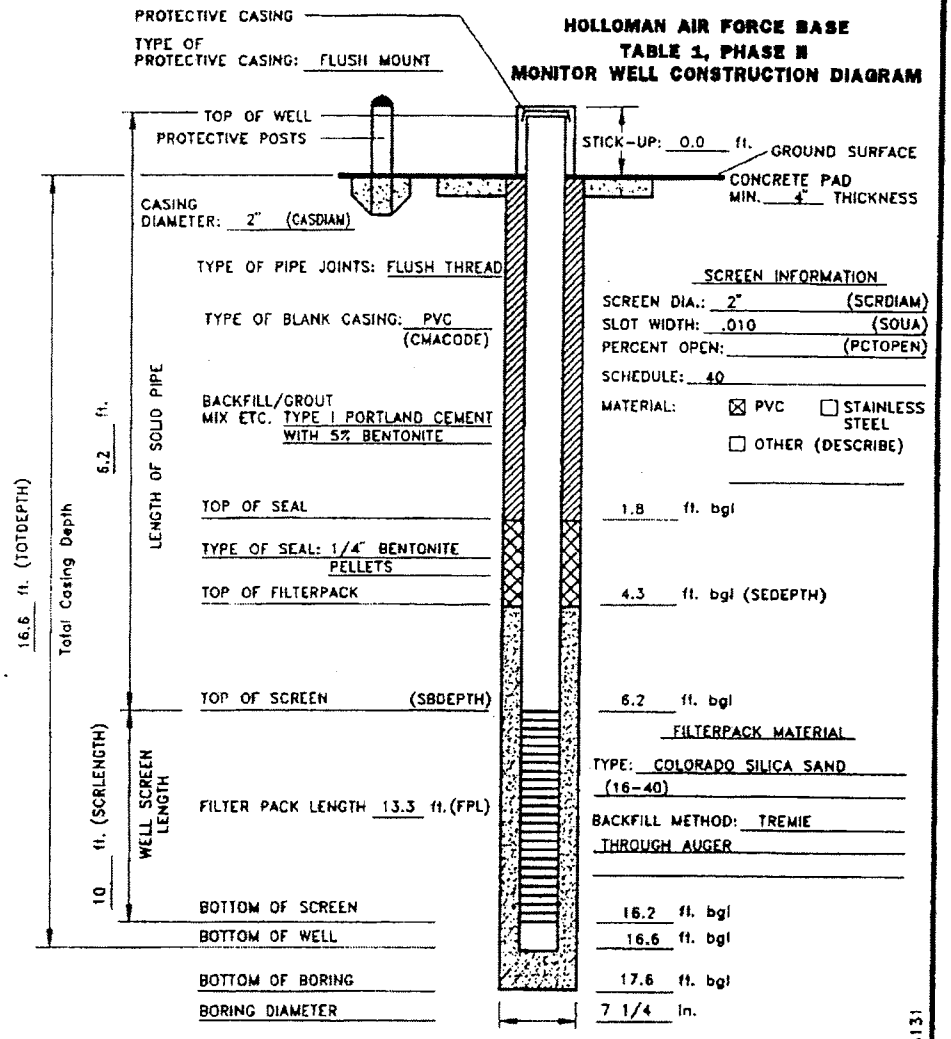
Project (PROJID)	Well I.D. (LOCID)	
HOLMN	MW-08-04	
Well Owner (VVL WELCODE)	Well Type (WL WTCODE)	
USAF	MNW	
Installer	Date Started (INSDATE)	Date Completed
GTI	11/7/94	11/7/94
Location Coordinates: (NCORD) (North) 672478.08	(ECORD) (East) 555017.95	
Elevation Top of Casing (MPELV)	Completion Method (VVL WCMCODE)	
4084.22	GS	
Sole Source Aquifer Code (VVL SAQCODE)		
NA		
Drilling Method	Completion Zone (VVL GZCODE)	
HS	W	
Remarks (REMARKS)		

HOLLOMAN AIR FORCE BASE
TABLE 1, PHASE II
MONITOR WELL CONSTRUCTION DIAGRAM



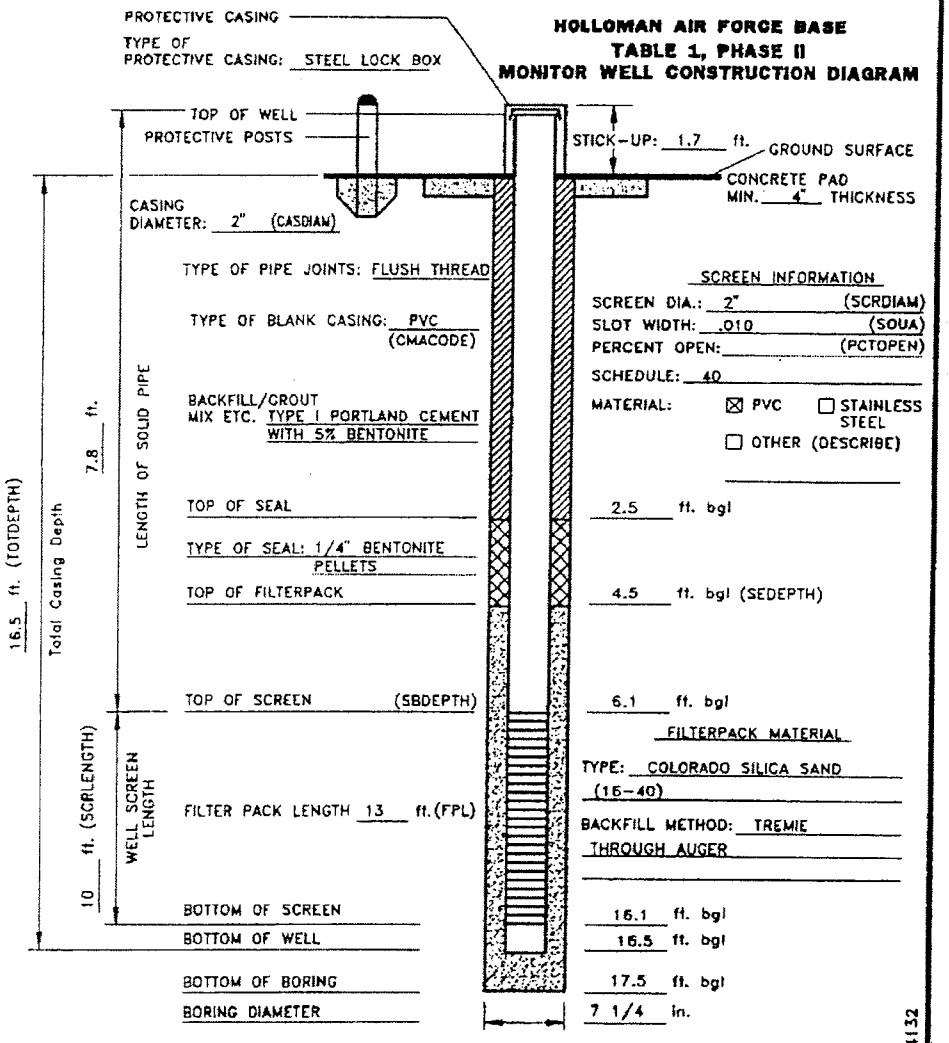
Project (PROJID) HOLMN	Well I.D. (LOCID) MW-08-05
Well Owner (VVL WELCODE) USAF	Well Type (WL WTCODE) MNW
Installer GTI	Date Started (INSDATE) 11/8/94 / Date Completed 11/8/94
Location Coordinates: (NCORD) (North) 672353.69	(ECORD) (East) 554853.41
Elevation Top of Casing (MPELV) 4084.45	Completion Method (VVL WCMCODE) GS
Sole Source Aquifer Code (VVL SAQCODE) NA	
Drilling Method HS	Completion Zone (VVL GZCODE) W
Remarks (REMARKS)	

HOLLOMAN AIR FORCE BASE
TABLE 1, PHASE II
MONITOR WELL CONSTRUCTION DIAGRAM



Project (PROJID)	Well I.D. (LOCID)	
HOLMN	MW-08-06	
Well Owner (VVL WELCODE)	Well Type (WL WTCODE)	
USAF	MNW	
Installer	Date Started (INSDATE)	Date Completed
GTI	11/7/94	11/7/94
Location Coordinates: (NCORD) (North) 672396.65	(ECORD) (East) 555099.61	
Elevation Top of Casing (MPELV)	Completion Method (VVL WCMCODE)	
4084.58	GS	
Sole Source Aquifer Code (VVL SAQCODE)		
NA		
Drilling Method	Completion Zone (VVL GZCODE)	
HS	W	
Remarks (REMARKS)		

HOLLOMAN AIR FORCE BASE
TABLE 1, PHASE II
MONITOR WELL CONSTRUCTION DIAGRAM



Appendix B-3

Bhate, October 2006

HTW DRILLING LOG

HOLE NO. SB-08-21

SHEET 1 OF 2 SHEETS

1. COMPANY NAME: Bhate	2. DRILLING CONTRACTOR:
3. PROJECT: SD08 Additional Investigation	4. LOCATION: SD08/SB-08-21
5. NAME OF DRILLER:	6. MANUFACTURER'S DESIGNATION OF DRILL: CME 75
7. SIZES & TYPES OF DRILLING & SAMPLING EQUIPMENT: CME 75; 5 ft core barrel; 6.5-in OD HSAs	8. HOLE LOCATION: North East
	9. SURFACE ELEVATION (ft. NGVD):
	10. DATE STARTED: 10/27/06 — 11. DATE COMPLETED: 10/27/06
12. OVERBURDEN THICKNESS:	15. DEPTH GROUNDWATER ENCOUNTERED: ~7 ft bgs
13. DEPTH DRILLED INTO ROCK:	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:
14. TOTAL DEPTH OF HOLE: 7.5 ft bgs	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES

20. SAMPLES FOR CHEMICAL ANALYSIS	VOCs	RCRA METALS (8)	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE REC %
2 + dup	X	X	Pest. X	SVOCs X		

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
Backfilled/plugged w/ Bentonite pellets, asphalt patch	X			[signature]

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No e	Analytical Sample No f	Blow Counts g	REMARKS h
	0	0-1 ft bgs asphalt / gravel back fill					
	1	1-5 ft bgs Silty sand (SM) v.f.gr. qtz, subangular well sorted, loose, sl. moist 7.5 YR 6/4 lt. brown	FID=0.0 ppm				
	2				SD08-SB21-2; SD08-SB21-2-a (dup) (0900)		
	3						
	4						
	5						

PROJECT: SD08 HOLE NO. SB-08-21

HTW DRILLING LOG

HOLE NO SB-08-21

PROJECT

INSPECTOR J. Moore

SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No. f	Blow Counts g	REMARKS h
	5	5-7 ft bgs silty sand/sand (SM/SP) v. f. gr. qtz, sub angular, well sorted, sl. moist	FID= 0.0ppm		SD08-(0930)	SB21-6	
	6						
	7	TD 7.5 ft bgs					
	8						

PROJECT SD-08

HOLE NO. SB-08-21

HTW DRILLING LOG

HOLE NO: SB-08-22

1. COMPANY NAME: Bhate	2. DRILLING CONTRACTOR: Rodgers
SHEET 1 OF 2 SHEETS	
3. PROJECT: SD08 Additional Investigation	4. LOCATION: SD08
5. NAME OF DRILLER: Brian Hitchcock	6. MANUFACTURER'S DESIGNATION OF DRILL: CME 75
7. SIZES & TYPES OF DRILLING & SAMPLING EQUIPMENT: CME 75; 6.5-in HSAs; 5 ft core barrel	8. HOLE LOCATION: North East
	9. SURFACE ELEVATION (ft. NGVD)
	10. DATE STARTED: 10/27/06
	11. DATE COMPLETED: 10/27/06
12. OVERBURDEN THICKNESS	15. DEPTH GROUNDWATER ENCOUNTERED: ~7 ft bgs.
13. DEPTH DRILLED INTO ROCK	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED
14. TOTAL DEPTH OF HOLE: 9 ft bgs	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES

20. SAMPLES FOR CHEMICAL ANALYSIS	VOCs	RCRA METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE REC %
2 [redacted]	X	X	Pest X	SVOCs X		

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
backfilled w/ bentonite pellets & asphalt patch			X	J H Moore

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No f	Blow Counts g	REMARKS h
	0	0-1 ft bgs asphalt cap w/ gravel backfill					
	1	1-5 ft bgs silty sand (SM) v.f. gr. qtz, subangular, well sorted loose, dry 7.5YR 5/6 Strong brown	FID = 0.0 ppm				
	2				SD08-SB22-2 (930)		
	3						
	4						
	5						

PROJECT: SD08 HOLE NO: SB-08-22

HTW DRILLING LOG

HOLE NO SB-08-22

PROJECT SD08

INSPECTOR J. Moore

SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b 5	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No. f	Blow Counts g	REMARKS h
	6	5-9 ft bgs silty sand (SM) v.f. gr. qtz, sub-angular, well sorted, loose, moist at the bottom interval (7-9 ft) ~~7.5YR 5/6 strong brown~~ SILT	FID = 0.0 ppm		SD08-SB22-7 plus MS/MSD (1000)		
	7						
	8						
	9	TD 9.0 ft bgs					

PROJECT SD08

HOLE NO. SB-08-22

HTW DRILLING LOG

(SD08)

HOLE NO. SB-08-23

1. COMPANY NAME: Bhate	2. DRILLING CONTRACTOR: Rodgers
SHEET 1 OF 2 SHEETS	
3. PROJECT: SD08 Additional Investigation	4. LOCATION: SD08
5. NAME OF DRILLER: Brian Hitchcock	6. MANUFACTURER'S DESIGNATION OF DRILL: CME 75
7. SIZES & TYPES OF DRILLING & SAMPLING EQUIPMENT: CME 75; 6.75 OD dia HSAs; 5 ft continuous core barrel	8. HOLE LOCATION: North East
	9. SURFACE ELEVATION (ft. NGVD)
	10. DATE STARTED: 10/27/06
	11. DATE COMPLETED: 10/27/06
12. OVERBURDEN THICKNESS	15. DEPTH GROUNDWATER ENCOUNTERED: ~ 8 ft bgs
13. DEPTH DRILLED INTO ROCK	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED
14. TOTAL DEPTH OF HOLE: 16.5 ft bgs	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES

20. SAMPLES FOR CHEMICAL ANALYSIS: 2	VOC	RCRA METALS (8)	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE REC %
	X	X	Pest X	SVOCs X		

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
Monitoring well MW-08-07		X		[signature]

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No. f	Blow Counts g	REMARKS h
	0	0-1 ft bgs asphalt w/ gravel back fill					
	1	1-3 ft bgs silty sand (sm) d. gr. qtz, subangular, well sorted, loose dry 7.5 YR 5/6 strong Brown	FID= 0.0ppm				
	3	3-5 ft bgs. silty sand (sm) qtz subangular, well sorted loose/med dense v. sl. moist 7.5YR 4/4 dk. brown	FID= 0.0ppm		SD08-SB23-4 (0-5)		
	4						
	5						

PROJECT: SD08 HOLE NO. SB-08-23

HTW DRILLING LOG

HOLE NO SB-08-23

PROJECT SD08

INSPECTOR J. Moore

SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No. f	Blow Counts g	REMARKS h
	5	5-7 ft bgs silty sand (SM)	FID =				
		grading into sand (SP)	0 ppm				
	6	v.f. gr. qtz, subrounded					
	7	7-9 ft bgs sand (SP)					
	8	v.f gr. qtz subrounded,					
		well sorted, loose					
	9	Saturated, 2.5YR					
		7/5 reddish yellow					
	10	9-16.5 NO sample					
		below water table					
	11						
	12						
	13						
	14						
	15						
	16						
	17	TD 16.5 ft					

PROJECT SD08 HOLE NO SB-08-23

HTW DRILLING LOG

HOLE NO: SB-08-24

1. COMPANY NAME: Bhate	2. DRILLING CONTRACTOR: Rodgers
SHEET 1 OF 2 SHEETS	
3. PROJECT: SD08 Additional Investigation	4. LOCATION: SD08
NAME OF DRILLER: Brian Hitchcock	6. MANUFACTURER'S DESIGNATION OF DRILL: CME 75
7. SIZES & TYPES OF DRILLING & SAMPLING EQUIPMENT: CME 75; 6.75 OD dia HSAs; 5 ft core barrel	8. HOLE LOCATION: North East
	9. SURFACE ELEVATION (ft. NGVD)
	10. DATE STARTED: 10/27/06
	11. DATE COMPLETED: 10/27/06
12. OVERBURDEN THICKNESS	15. DEPTH GROUNDWATER ENCOUNTERED: ~ 8 ft bgs
13. DEPTH DRILLED INTO ROCK	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED
14. TOTAL DEPTH OF HOLE: 16.5 ft bgs	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY)

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
2		X	

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	RCRA METALS (8)	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE REC %
No soil for chemical analysis	X	X	Pest X	SVOCs X		

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
upgradient monitoring MW-08-08 well		X		JH Moore

ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No f	Blow Counts g	REMARKS h
	0	0-3 ft bgs silty sand (SM) v. f. gr. qtz. subangular, well sorted well sorted, loose dry 7.5 YR 6/4 lt. brown					
	1						
	2						
	3	3-8 ft bgs silty sand (SM) saturated at the bottom of the interval @ 8 ft bgs			SD08-SB24-3 (1320) Geotech ~~analysis~~ moisture content dry bulk density specific gravity Fractional Organic Carbon		
	4						
	5						

PROJECT: SD08 HOLE NO: SB-08-24

HTW DRILLING LOG

HOLE NO. SB-08-24

PROJECT SD08

INSPECTOR J. Moore

SHEET 2 OF 2 SHEETS

ELEV. a	DEPTH b 5	DESCRIPTION OF MATERIALS c	Field Screening Results d	Geotech Sample or Core Box No. e	Analytical Sample No. f	Blow Counts g	REMARKS h
	6						
	7						
	8	8 - 16.5 - No Soil sampling below water table		SD08 - SB24 - 8 Geotechnical analysis: Moisture content Dry Bulk Density Specific Gravity Fractional Organic carbon			
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16	TD 16.5 ft bgs					
	17						

PROJECT SD08 HOLE NO. SB-08-24

BHATE
Environmental Engineers and Scientists

WELL CONSTRUCTION DIAGRAM (Flush Mount)

SITE:	SD08	WELL/BORING ID:	MW-08-07 / SB-08-28
PROJECT NAME:	Additional Investigation	DRILLING METHOD:	HSA 6 3/4 - in OD
PROJECT NO./PHASE:	Downgradient well	DATE(S):	10/27/06
DRILLING CONTRACTOR:	Rodgers	SURVEYOR:	
DRILLER:	Brian Hitchcock	NORTHING (NAD 83):	
GEOLOGIST:	Jim Moore	EASTING (NAD 83):	

NOT TO SCALE

Surface Elevation (NAVD 88):

Casing Elevation (NAVD 88):

Borehole Diameter (in): 6.75 in

Well Casing Diameter (in): 2 in OD

DEPTH TO WATER

During Drilling:

Date

Pre Development: 7.9 ft bgs

Date 10/27/06

Post Development:

Date

Top of Secondary Filter Pack: 2.5

Top of Filter Pack: 4.5

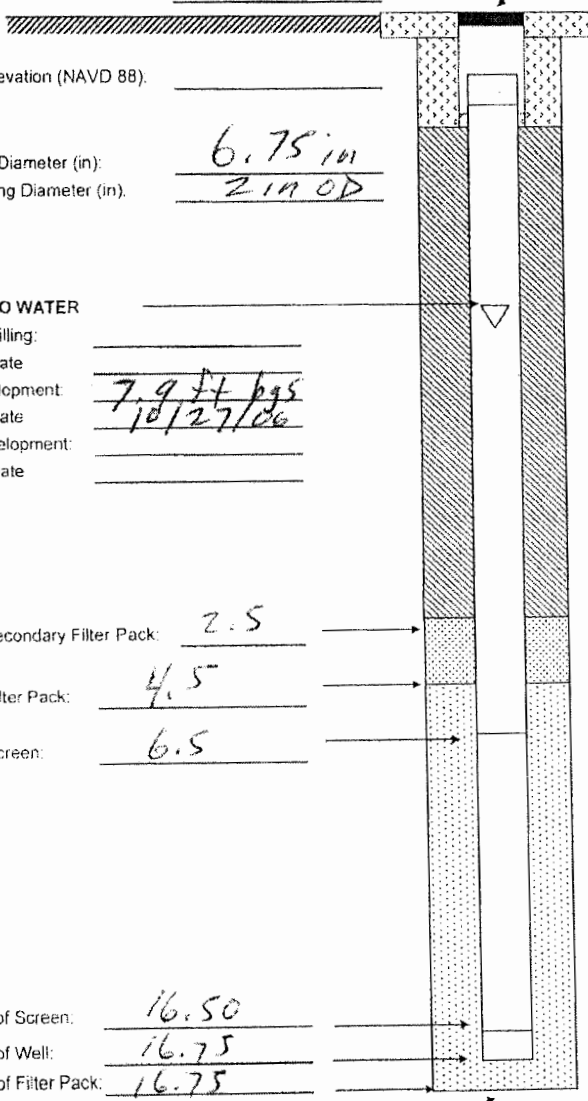
Top of Screen: 6.5

Bottom of Screen: 16.50

Bottom of Well: 16.75

Bottom of Filter Pack: 16.75

Borehole Depth: 16.75



PROTECTIVE CASING

Type: Morrison

Dimensions: 8-in dia

Length: 12 in

SURFACE PAD

Dimensions: 8 in dia Manhole

Type: Manhole cover / flush mount

WELL CASING (RISER)

Manufacturer: EMT

Type/Material: PVC Sch 40

Diameter (in): 2-in

Connection: Threaded

WELL SCREEN

Manufacturer: EMT

Type/Material: PVC Sch 40

Slot Size (in): 0.010

Slot Type: Continuous (Factory Slot)

Connection: Threaded

ANNULAR SEAL

Type: Portland Type I/II Bentonite Quick Gel

Manufacturer: Quikrete

Mud Scale:

Installation: (Gravity) Tremie Pressure

Volume: 1/2 60 lb bag

Hydration Time: 7 hr

SECONDARY FILTER PACK

Manufacturer: Baroid

Product Name: 3/4 bentonite pellets

Size:

Volume (ft3): 1-50 lb bucket

Installation: (Tremie) Gravity

PRIMARY FILTER PACK

Manufacturer: Oglebay Norton

Product Name: Colorado Silica Sand

Size: 10-20

Volume (ft3): 6-50 lb bags

Installation: (Tremie) Gravity

SUMP/END CAP

Type: PVC

Length: 0.25 ft

BACKFILL MATERIAL

Type: NA

Volume:

Comments:

BHATE
Environmental Engineers and Scientists

WELL CONSTRUCTION DIAGRAM (Flush Mount)

SITE:	SD08	WELL/BORING ID:	MW-08-08/SB-08-24
PROJECT NAME:	Additional Investigation	DRILLING METHOD:	HSA 6 3/4-in OD
PROJECT NO./PHASE:		DATE(S):	10/27/06
DRILLING CONTRACTOR:	Rodgers	SURVEYOR:	Upgradient well
DRILLER:	Brian Hitchcock	NORTHING (NAD 83):	
GEOLOGIST:	Jim Moore	EASTING (NAD 83):	

NOT TO SCALE

Surface Elevation (NAVD 88):

Casing Elevation (NAVD 88):

Borehole Diameter (in): 6.75-inch

Well Casing Diameter (in): 2-inch

DEPTH TO WATER

During Drilling:

Date

Pre Development: 7.9 ft bgs

Date 10/27/06

Post Development:

Date

Top of Secondary Filter Pack: 2.5

Top of Filter Pack: 4.5

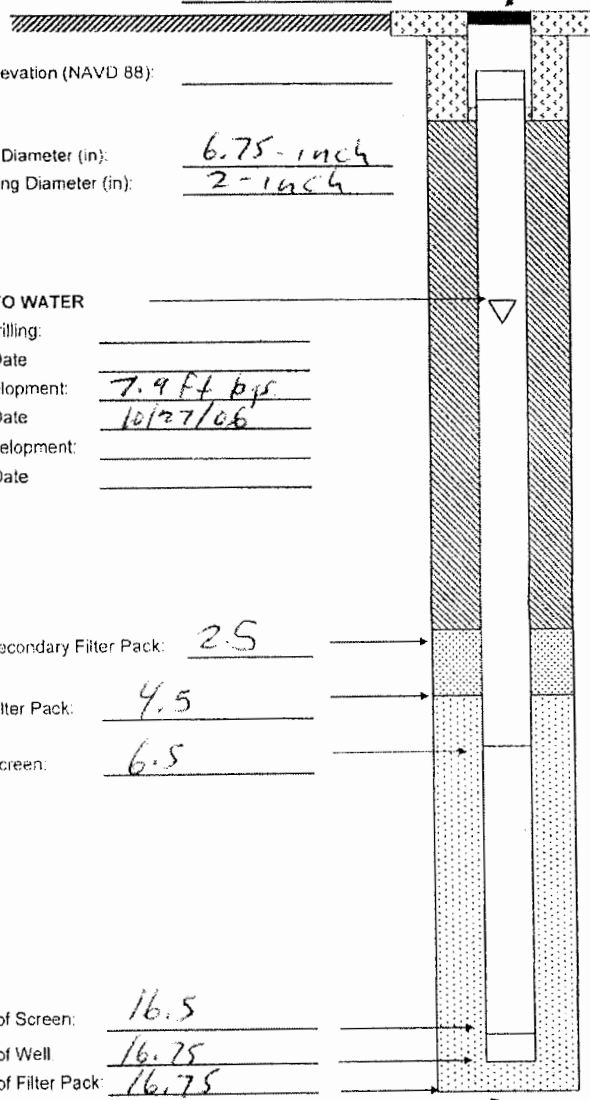
Top of Screen: 6.5

Bottom of Screen: 16.5

Bottom of Well 16.75

Bottom of Filter Pack: 16.75

Borehole Depth: 16.75



PROTECTIVE CASING
Type: Morrison
Dimensions: 8-in dia
Length: 12-in

SURFACE PAD
Dimensions: 8-in dia manhole
Type: manhole/flush mount

WELL CASING (RISER)
Manufacturer: EMI
Type/Material: PVC Sch 40
Diameter (in): 2-in
Connection: Threaded

WELL SCREEN
Manufacturer: EMI
Type/Material: PVC Sch 40
Slot Size (in): 0.010
Slot Type: Continuous (Factory Slot)
Connection: Threaded

ANNULAR SEAL
Type: Portland Type I/II Bentonite Quick Gel
Manufacturer: Quikrete
Mud Scale:
Installation: (Gravity) Tremie Pressure
Volume: ½ 60 lb bag
Hydration Time: 1hr

SECONDARY FILTER PACK
Manufacturer: Baroid
Product Name: ¼-in Bentonite pellets
Size: 0.25 inch
Volume (ft3): 1-50 lb bucket
Installation: (Tremie) Gravity

PRIMARY FILTER PACK
Manufacturer: Oglebay Norton
Product Name: Colorado Silica Sand
Size: 10-20
Volume (ft3): 6-50 lb bags
Installation: (Tremie) Gravity

SUMP/END CAP
Type: PVC Sch 40
Length: 0.25 ft

BACKFILL MATERIAL
Type: NA
Volume:

Comments:

APPENDIX C

FIELD SAMPLING DOCUMENTATION

Holloman AFB, New Mexico
Field Activities Logbook
J H Moore, Bhate

K+E

"Rite in the Rain"

WEATHERPROOF FIELD BOOK

82 0004

bhate associates
ENGINEERING, SCIENCE AND CONSTRUCTION
RESPONSIVENESS · INTEGRITY · TEAMWORK

Jim Moore, PG
Project Manager

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1605 Called FG re SD08 as the historic water table is ~ 9 ft bgs soil samples for chemical analysis will be collected at ~ 3 ft and 7 ft bgs

1630 Finish grouting annulus @ MW10

1650 Drillers steam cleaning augers

1700 LV DP63 / Base for the day.

JH Moore

JH Moore 10/26/06

10/27/06

Team: Jim Moore Blade
Bernard Wolfe Blade
Brian Hitchcock Rodgers
John Aguilar Rodgers

Location - SD08

Activity - Soil Borings, soil sampling
Monitor well installation

Equipment CME 75 HSA Drill Rig
6.75 in OD Augers
5 ft SS core barrel

PPE Level D

Weather AM Cool clear mid 40's
PM

0700 Arr @ Blade Field office

0700-0745 Obtain sampling supplies at SD08

0800 Drillers obtain water

0831 Set up Rig at SD08
Soil boring SB-08-21

0845 Start SB-08-21

0900 Drilled to 7.5 ft bgs

0900 SD08-SB21-2 soil sample
SD08-SB21-2-9 dup

Analysis: VOCs x 3 encores

JH Moore 10/27/06

Pesticides SVOCs & 8 RCRA metals:
1-4 ~~8~~ oz jar
Collect Soil Sample:
0930 SD08-SB22-6 for analysis:
VOCs X 3 encores
Pesticides
SVOCs
8 RCRA metals
4 jm
1-8 oz jar
0930 Move rig to SB-08-22
0935 Start soil boring SB-08-22
0940 drilled to 5 ft bgs.
0950 drilled to 9 ft bgs
~~0930~~ 0955 Collected soil sample
SD08-SB22-2 for analysis
VOCs X 3 encores
SVOCs
Pesticides
8 RCRA Metals
4 jm
1 8 oz jar
1000 Collected Soil Sample
SD08-SB22-7 + MS/MSD (x3 vol)
Bernard W. has collected all
Pest/svoc/metals in 1-4 oz
Jar should be 1-8 oz jm
called Casey Anderson at
Accutest he said that they

10/27/06 JH Moore

could still do their analyses
with the 4 oz sample
volume Bernard will collect
the remaining samples with
8 oz
1000 SD08-SB22-EB (Rinsate)
1005 St drilling SB-08-23
1045 collected soil sample
SD08-SB23-4
VOCs X 3 encores
SVOCs
Pest
8 RCRA metals
x 1-8 oz jar
1115 collected soil sample
SD08-SB23-7
VOCs X 3 encores
SVOCs
Pest
8 RCRA Metals
1 8 oz jar
1120 water level at MW-08-02 F
8.6 ft bgs
1120 TD SB-08-23 @ 16.5 ft bgs
1123 Install 2-in PVC MW
screen interval 6.5-16.5 ft bgs
MW-08-07
1230 Complete MW-08-07 flush mount
JH Moore 10/27/06

1300 Set up rig at SB-08-24
1310 Start drilling
1317 Drilled to 3 ft bgs w/ plastic inserts (geotech samples) 0% sample recovery
1320 Resampled 0-3 ft bgs Geotechnical Sample SD08-SB24-3 for the following Analysis
Moisture Content
Dry Bulk density
Specific Gravity
Fractional organic Carbon
} 3in x 1-2.5 ft plastic tube
1330 Collected Geo technical sample SD08-SB24-8 for the following analysis
Moisture Content
Dry Bulk Density
Specific Gravity
Fractional Organic Carbon
} 1 - 3in x 2.5 ft plastic tube
1345 Drilled to 16.5 ft bgs
1350 Set 2-in PVC sch 40 Monitoring well w/ screen 6.5-16.5 ft bgs
1420 Finish installing filter

10/28/06 JH Moore

pack at bentonite pellet seal for MW-08-08
1445 - LV SD08
1450 - AR @ DP63
1500-1630 - Complete flush mounts w/ concrete pad at DP63-MW09 & DP63-MW10
1645 Drop off trash @ Bhate Field office
1700 Return to SD08 for auger decon
Spoke w/ Heather Wardwing @ Accutest its ok to send 2 encores/sample tomorrow w/ 4oz jar for moisture content.
Spoke w/ FG sample plan @ SS17 capillary fringe (7 ft) and below visible contamination 12-15 ft bgs.
1745 Fin decon leave base

JH Moore

10/28/06 JH Moore

10/30/06

Team:

Tim Moore Bhate
Bernard Wolfe Bhate
John Aguirre Rodgers
Brian Hitchcock Rodgers

0715 Hr @ Bhate Field office
0715 - 0800 Drillers demob
drilling equipment
0800 - 0900 Drillers complete
flush mount well completion
of MW-08-08 (5008)
0910 Drillers demob from
HAFB.
1200 LV KAFB drive
back to Denver

J H Moore

J H Moore Notes

MONITORING WELL SAMPLE COLLECTION FORM

BHATE Environmental Engineers and Scientist

Page 1 of

LOCATION	Site: SD08	Location ID: SD08-S-10MW01	Date: 11/13/06
	Project Name:	Project No./Phase:	Recorded By:
EQUIPMENT	Pump Type/ID#:	Water Quality Meter/ID#:	PID Type/ID#:
	Water Level Indicator Type/ID#:	Other Equipment/ID#:	Decon Method:
	Tubing Type/Diameter (in):	Other Equipment/ID#:	PPE Level: D C B A
WELL INFO	(A) Initial Depth to Water (ft BTOC): 10.41	Casing: Type PVC Diam. (in) 2	Weather: Clear
	(B) Total Well Depth (ft BTOC): 21.68	(E) Casing Volume Multiplier (gal/lin ft): .16	Background PID (ppm):
	(C) Water Column Thickness (ft) (B-A): 11.27	Screen Length (lin ft):	Breathing Zone PID (ppm):
	(D) Well Volume (gal) (C x E): 1.80	Screen Info: Type: Size:	Well Opening PID (ppm):

CASING INFO											
Riser/Well Casing Inner Diameter (in)	0.50	1.00	1.50	2.00	3.00	4.00	5.0	6.0	8.0	10
(D) Casing Volume Multiplier(gal/lin ft)	0.02	0.04	0.10	0.16	0.38	0.65	1.02	1.47	2.61	4.08

DATE (mmddyy)	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (gal)	Pumping Rate (gpm)	Temp (C)	pH	Cond. (mS/cm)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Oxidation Reduction Potential (mV)	Remarks (odor, clarity, etc.)
~~1033~~ 11.13.06	1033	10.41	1L	1L	20.34	6.80	15.74	78.8	19	-15.7	Yellowish color - slight odor
11.13.06	1039	10.41	1L	1L	20.00	6.59	15.01	79.8	30	-15.9	" " - " "
"	1042	10.41	1L	1L	20.07	6.54	14.76	74.1	37	-16.1	" " - " "
"	1046	10.41	1L	1L	20.39	6.56	15.34	70.1	50	-23.9	" " - " "
"											
"											

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units							

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 0.5	DO	+/- 0.2
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10
	Cond	+/- 25	ORP	+/- 10

MONITORING WELL SAMPLE COLLECTION FORM

BHATE
Environmental Engineers and Scientist

Page 1 of

LOCATION	Site: SD-08	Location ID: SD-08-08-01	Date: 11-13-06
	Project Name: Hollomon	Project No./Phase:	Recorded By:
EQUIPMENT	Pump Type/ID#:	Water Quality Meter/ID#:	PID Type/ID#:
	Water Level Indicator Type/ID#:	Other Equipment/ID#:	Decon Method:
	Tubing Type/Diameter (in):	Other Equipment/ID#:	PPE Level: D C B A
WELL INFO	(A) Initial Depth to Water (ft BTOC): 10.70	Casing: Type PVC Diam. (in) 2	Weather:
	(B) Total Well Depth (ft BTOC): 19.57	(E) Casing Volume Multiplier (gal/lin ft): .16	Background PID (ppm):
	(C) Water Column Thickness (ft) (B-A): 8.87	Screen Length (lin ft):	Breathing Zone PID (ppm):
	(D) Well Volume (gal) (C x E): 1.42	Screen Info: Type: Size:	Well Opening PID (ppm):

CASING INFO											
Riser/Well Casing Inner Diameter (in)	0.50	1.00	1.50	2.00	3.00	4.00	5.0	6.0	8.0	10
(D) Casing Volume Multiplier(gal/lin ft)	0.02	0.04	0.10	0.16	0.38	0.65	1.02	1.47	2.61	4.08

DATE (mmddyy)	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (gal)	Pumping Rate (gpm)	Temp (C)	pH	Cond. (mS/cm)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Oxidation Reduction Potential (mV)	Remarks (odor, clarity, etc.)
11/13/06	11:24	10.70	1L	1L	22.38	6.47	12.65	71.9	7.3	-27.1	clear, petroleum smell
	11:27	10.70	1L	1L	23.74	6.54	12.54	84.0	90	-29.7	" " "
	11:31	10.70	1L	1L	23.49	6.65	12.58	68.8	60	-24.3	" " "
	11:34	10.70	1L	1L	23.72	6.64	12.69	70.3	120	-27.5	" " "

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units							

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 0.5	DO	+/- 0.2
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10
	Cond	+/- 25	ORP	+/- 10

MONITORING WELL SAMPLE COLLECTION FORM

BHATE
Environmental Engineers and Scientist

Page 1 of

LOCATION	Site: 50-03	Location ID: 50-08-08-03	Date: 11-13-06
	Project Name:	Project No./Phase:	Recorded By:
EQUIPMENT	Pump Type/ID#:	Water Quality Meter/ID#:	PID Type/ID#:
	Water Level Indicator Type/ID#:	Other Equipment/ID#:	Decon Method:
	Tubing Type/Diameter (in):	Other Equipment/ID#:	PPE Level: D C B A
WELL INFO	(A) Initial Depth to Water (ft BTOC): 9.1	Casing: Type PVC Diam. (in) 2.0	Weather: Clear
	(B) Total Well Depth (ft BTOC): 18.93	(E) Casing Volume Multiplier (gal/lin ft): .16	Background PID (ppm):
	(C) Water Column Thickness (ft) (B-A): 9.83	Screen Length (lin ft):	Breathing Zone PID (ppm):
	(D) Well Volume (gal) (C x E): 1.57	Screen Info: Type: Size:	Well Opening PID (ppm):

CASING INFO											
Riser/Well Casing Inner Diameter (in)	0.50	1.00	1.50	2.00	3.00	4.00	5.0	6.0	8.0	10
(D) Casing Volume Multiplier(gal/lin ft)	0.02	0.04	0.10	0.16	0.38	0.65	1.02	1.47	2.61	4.08

DATE (mmddyy)	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (gal)	Pumping Rate (gpm)	Temp (C)	pH	Cond. (mS/cm)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Oxidation Reduction Potential (mV)	Remarks (odor, clarity, etc.)
11-13-06	9:22	9.1							70		
	9:34								60		
	9:37								26		
				Sond							
				Shut Down							

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units							

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 0.5	DO	+/- 0.2
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10
	Cond	+/- 25	ORP	+/- 10

MONITORING WELL SAMPLE COLLECTION FORM

BHATE
Environmental Engineers and Scientist

Page 1 of

LOCATION	Site: SD-08	Location ID: SD-08-MW-08-07	Date: 12-1-06
	Project Name: Holloman	Project No./Phase:	Recorded By: Tony Lucero
EQUIPMENT	Pump Type/ID#:	Water Quality Meter/ID#:	PID Type/ID#:
	Water Level Indicator Type/ID#:	Other Equipment/ID#:	Decon Method:
	Tubing Type/Diameter (in):	Other Equipment/ID#:	PPE Level: D C B A
WELL INFO	(A) Initial Depth to Water (ft BTOC): 8.1	Casing: Type PVC Diam. (in) 2.0	Weather: clear
	(B) Total Well Depth (ft BTOC): 16.5	(E) Casing Volume Multiplier (gal/lin ft): .16 1 4.03	Background PID (ppm):
	(C) Water Column Thickness (ft) (B-A): 8.4	Screen Length (lin ft):	Breathing Zone PID (ppm):
	(D) Well Volume (gal) (C x E): 1.34	Screen Info: Type: Size:	Well Opening PID (ppm):

CASING INFO											
Riseer/Well Casing Inner Diameter (in)	0.50	1.00	1.50	2.00	3.00	4.00	5.0	6.0	8.0	10
(D) Casing Volume Multiplier(gal/lin ft)	0.02	0.04	0.10	0.16	0.38	0.65	1.02	1.47	2.61	4.08

DATE (mmddyy)	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (gal)	Pumping Rate (gpm)	Temp (C)	pH	Cond. (mS/cm)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Oxidation Reduction Potential (mV)	Remarks (odor, clarity, etc.)
12-1-06	12:05		1L	1L	22.72	7.58	4.43	28.31			IR
	12:13		1 1/2 gal	1L	23.66	7.15	3.63	22.37			1 well volum
	12:22		3 1/4	1L	23.62	6.89	3.65	19.96			2 well volume
	12:28		5 gal	1L	23.33	6.80	3.57	22.63			3 well volume.

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units							

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 0.5	DO	+/- 0.2
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10
	Cond	+/- 25	ORP	+/- 10

MONITORING WELL SAMPLE COLLECTION FORM

BHATE
Environmental Engineers and Scientist

Page 1 of

LOCATION	Site: SD-08	Location ID: SD-08-08-08	Date: 11-16-06
	Project Name:	Project No./Phase:	Recorded By:
EQUIPMENT	Pump Type/ID#:	Water Quality Meter/ID#:	PID Type/ID#:
	Water Level Indicator Type/ID#:	Other Equipment/ID#:	Decon Method:
	Tubing Type/Diameter (in):	Other Equipment/ID#:	PPE Level: D C B A
WELL INFO	(A) Initial Depth to Water (ft BTOC): 16.11	Casing: Type Diam. (in)	Weather:
	(B) Total Well Depth (ft BTOC): 7.19	(E) Casing Volume Multiplier (gal/lin ft):	Background PID (ppm):
	(C) Water Column Thickness (ft) (B-A): 8.92	Screen Length (lin ft):	Breathing Zone PID (ppm):
	(D) Well Volume (gal) (C x E): 1.43	Screen Info: Type: Size:	Well Opening PID (ppm):

CASING INFO											
Riser/Well Casing Inner Diameter (in)	0.50	1.00	1.50	2.00	3.00	4.00	5.0	6.0	8.0	10
(D) Casing Volume Multiplier(gal/lin ft)	0.02	0.04	0.10	0.16	0.38	0.65	1.02	1.47	2.61	4.08

DATE (mmddyy)	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (gal)	Pumping Rate (gpm)	Temp (C)	pH	Cond. (mS/cm)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Oxidation Reduction Potential (mV)	Remarks (odor, clarity, etc.)
11-16-06	1208	7.19	4.2	1L	21.8	7.56	30.2	47.0	250	242.0	Initial Reading
	1215	7.19	1.4	1L	21.4	7.38	11.56	77.6	ER3	235.1	
	1222	7.19	2.8	1L	21.3	7.18	20.55	72.5	ER3	258.7	
	12:28	7.19	5.25	1L	21.05	7.21	24.70	68.5	ER3	257.1	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units							

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 0.5	DO	+/- 0.2
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10
	Cond	+/- 25	ORP	+/- 10

Points

Project : SD08 Resurvey

User name	kgermann	**Date & Time**	10:46:25 AM 1/15/2007
Coordinate System	US State Plane 1983	**Zone**	New Mexico Central 3002
Project Datum	NAD 1983 (Conus)		
Vertical Datum		**Geoid Model**	GEOID03
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

Point listing

	Name	Northing	Easting	Elevation	Feature Code
	mw-08-05	672406.611	1695104.326	4089.007	sd-08
New —	mw-08-08	672605.206	1694890.530	4087.489	sd-08
	MW08-01	672357.186	1694929.744	4090.696	sd-08
	s10-mw01	672303.868	1695302.668	4089.448	sd-08
New —	mw-08-07	672313.405	1695057.769	4087.779	sd-08

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SD-08 Resurvey
1-15-2007
KG

APPENDIX D

ANALYTICAL DATA PACKAGES

SOIL

F44814

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

11/15/06

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT 9050361.01.04

Accutest Job Number: F44814

Sampling Date: 10/27/06

Report to:

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Total number of pages in report: 122

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F44814

HOLMN
Project No: PROJECT 9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F44814-1	10/27/06	09:45 JM	10/28/06	SO	Soil	SD-08-SB22-2
F44814-2	10/27/06	10:00 JM	10/28/06	SO	Soil	SD-08-SB22-7
F44814-2D	10/27/06	10:00 JM	10/28/06	SO	Soil Dup/MSD	SD-08-SB22-7
F44814-2S	10/27/06	10:00 JM	10/28/06	SO	Soil Matrix Spike	SD-08-SB22-7
F44814-3	10/27/06	10:00 JM	10/28/06	AQ	Equipment Blank	SD-08-SB22-EB
F44814-4	10/27/06	00:00 JM	10/28/06	AQ	Trip Blank Water	TRIP BLANK
F44814-5	10/27/06	00:00 JM	10/28/06	SO	Trip Blank Soil	TRIP BLANK

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F44814

Site: HOLMN **Report Date** 11/15/2006 2:29:51

3 Samples, 2 Trip Blanks were collected on 10/27/2006 and received at Accutest on 10/28/2006 properly preserved, at 0.8 Deg. C and intact. These Samples received an Accutest job number of F44814. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VJ1069

All method blanks for this batch meet method specific criteria.

Sample(s) F44907-1MS, F44907-1MSD were used as the QC samples indicated.

The following samples were run outside of holding time for method SW846 8260B: F44814-3, F44814-4 Sample analyzed beyond hold time; reported results are considered minimum values.

Matrix Spike Recovery(s) for p-Chlorotoluene are outside control limits. Probable cause due to matrix interference.

Matrix Spike Duplicate Recovery(s) for 1,2,4-Trimethylbenzene are outside control limits. Probable cause due to matrix interference.

F44814-4: Sample analyzed beyond hold time; reported results are considered minimum values.

F44814-3: Sample analyzed beyond hold time; reported results are considered minimum values.

Matrix: SO **Batch ID:** VG1573

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44735-2MS, F44735-2MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for Acrolein, Vinyl Acetate are outside control limits.

Matrix Spike Recovery(s) for Acrolein are outside control limits. Probable cause due to matrix interference.

Matrix Spike Duplicate Recovery(s) for Acrolein are outside control limits. Probable cause due to matrix interference.

Matrix: SO **Batch ID:** VG1574

All samples were analyzed within the recommended method holding time.

Sample(s) F44814-2MS, F44814-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Blank Spike Recovery(s) for Vinyl Acetate are outside control limits. Passed in MS/MSD, SW-846 8000 requirements are met.

MS/MSD Recovery(s) for Acrolein are outside control limits. See Blank Spike. Probable cause due to matrix interference.

Extractables by GCMS By Method SW846 8270C

Matrix: AQ **Batch ID:** OP18327

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44781-2MS, F44781-2MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for Pentachlorophenol are outside control limits. Probable cause due to matrix interference.

Matrix Spike Duplicate Recovery(s) for 2-Chloronaphthalene, 2-Methylnaphthalene, 2-Nitroaniline, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4-Bromophenyl phenyl ether, 4-Chloroaniline, 4-Nitroaniline, Benzidine, Dibenzofuran, Pentachlorophenol are outside control limits. Probable cause due to matrix interference.

RPD(s) for MSD for 2-Methylnaphthalene, 2-Nitroaniline, 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4-Chloroaniline, 4-Nitroaniline, Benzidine, Benzyl Alcohol, Dibenzofuran, Pentachlorophenol are outside control limits for sample OP18327-MSD. Probable cause due to sample homogeneity.

Matrix: SO **Batch ID:** OP18426

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44814-2MS, F44814-2MSD were used as the QC samples indicated.

MS/MSD Recovery(s) for Benzidine are outside control limits. See Blank Spike. Probable cause due to matrix interference.

Extractables by GC By Method SW846 8081A

Matrix: AQ **Batch ID:** OP18355

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44745-1MS, F44745-1MSD were used as the QC samples indicated.

Matrix: SO **Batch ID:** OP18466

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) F44814-2MS, F44814-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010B

Matrix: AQ **Batch ID:** MP10617

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44741-8ADUP, F44741-8AMS, F44741-8AMSD, F44741-8ASDL were used as the QC samples for metals.

RPD(s) for Duplicate for Barium, Cadmium, Chromium, Lead are outside control limits for sample MP10617-D1. RPD acceptable due to low duplicate and sample concentrations.

RPD(s) for Serial Dilution for Cadmium, Chromium, Lead are outside control limits for sample MP10617-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Matrix: AQ **Batch ID:** MP10652

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44835-1DUP, F44835-1MS, F44835-1MSD, F44835-1SDL were used as the QC samples for metals.

Matrix: SO **Batch ID:** MP10628

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44814-2DUP, F44814-2MS, F44814-2MSD, F44814-2SDL were used as the QC samples for metals.

Matrix Spike Recovery(s) for Barium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

RPD(s) for Duplicate for Cadmium are outside control limits for sample MP10628-D1. RPD acceptable due to low duplicate and sample concentrations.

RPD(s) for MSD for Barium are outside control limits for sample MP10628-S2. High RPD due to possible sample nonhomogeneity.

RPD(s) for Serial Dilution for Arsenic, Cadmium, Lead, Chromium are outside control limits for sample MP10628-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

MP10628-SD1 for Chromium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 7470A

Matrix: AQ **Batch ID:** MP10594

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44699-1MS, F44699-1MSD, F44699-1DUP were used as the QC samples for metals.

RPD(s) for Duplicate for Mercury are outside control limits for sample MP10594-D1. RPD acceptable due to low duplicate and sample concentrations.

Metals By Method SW846 7471A

Matrix: SO **Batch ID:** MP10603

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44814-2MS, F44814-2MSD, F44814-2DUP were used as the QC samples for metals.

RPD(s) for Duplicate for Mercury are outside control limits for sample MP10603-D1. RPD acceptable due to low duplicate and sample concentrations.

Wet Chemistry By Method EPA 160.3 M

Matrix: SO **Batch ID:** GN22800

Sample(s) F44808-1DUP were used as the QC samples for Solids, Percent.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: November 15, 2006

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	[redacted]		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	74.3
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040981.D	1	11/02/06	SH	10/28/06 11:45	n/a	VG1573
Run #2							

	Initial Weight
Run #1	4.82 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	70	35	ug/kg	
75-05-8	Acetonitrile	ND	70	49	ug/kg	
107-02-8	Acrolein	ND	35	21	ug/kg	
107-13-1	Acrylonitrile	ND	35	17	ug/kg	
107-05-1	Allyl chloride	ND	35	7.0	ug/kg	
71-43-2	Benzene	ND	7.0	2.8	ug/kg	
100-44-7	Benzyl Chloride	ND	7.0	4.2	ug/kg	
108-86-1	Bromobenzene	ND	7.0	2.8	ug/kg	
74-97-5	Bromochloromethane	ND	7.0	2.8	ug/kg	
75-27-4	Bromodichloromethane	ND	7.0	2.8	ug/kg	
75-25-2	Bromoform	ND	7.0	2.8	ug/kg	
104-51-8	n-Butylbenzene	ND	7.0	4.2	ug/kg	
135-98-8	sec-Butylbenzene	ND	7.0	2.8	ug/kg	
98-06-6	tert-Butylbenzene	ND	7.0	2.8	ug/kg	
108-90-7	Chlorobenzene	ND	7.0	2.8	ug/kg	
75-00-3	Chloroethane	ND	7.0	4.2	ug/kg	
67-66-3	Chloroform	ND	7.0	2.8	ug/kg	
544-10-5	1-Chlorohexane	ND	7.0	2.8	ug/kg	
95-49-8	o-Chlorotoluene	ND	7.0	2.8	ug/kg	
106-43-4	p-Chlorotoluene	ND	7.0	2.8	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	35	17	ug/kg	
75-15-0	Carbon disulfide	ND	7.0	2.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	7.0	2.8	ug/kg	
75-34-3	1,1-Dichloroethane	ND	7.0	2.8	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	7.0	2.8	ug/kg	
563-58-6	1,1-Dichloropropene	ND	7.0	2.8	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	7.0	4.2	ug/kg	
106-93-4	1,2-Dibromoethane	ND	7.0	2.8	ug/kg	
107-06-2	1,2-Dichloroethane	ND	7.0	2.8	ug/kg	
78-87-5	1,2-Dichloropropane	ND	7.0	2.8	ug/kg	
142-28-9	1,3-Dichloropropane	ND	7.0	2.8	ug/kg	
594-20-7	2,2-Dichloropropane	ND	7.0	2.8	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

3.1

3

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	74.3
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	7.0	2.8	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.0	4.2	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	7.0	2.8	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	7.0	2.8	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	35	7.0	ug/kg	
541-73-1	m-Dichlorobenzene	ND	7.0	2.8	ug/kg	
95-50-1	o-Dichlorobenzene	ND	7.0	2.8	ug/kg	
106-46-7	p-Dichlorobenzene	ND	7.0	2.8	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	7.0	2.8	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	7.0	2.8	ug/kg	
100-41-4	Ethylbenzene	ND	7.0	2.8	ug/kg	
97-63-2	Ethyl methacrylate	ND	35	7.0	ug/kg	
76-13-1	Freon 113	ND	7.0	2.8	ug/kg	
591-78-6	2-Hexanone	ND	35	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	7.0	2.8	ug/kg	
110-54-3	Hexane	ND	7.0	4.2	ug/kg	
98-82-8	Isopropylbenzene	ND	7.0	2.8	ug/kg	
99-87-6	p-Isopropyltoluene	ND	7.0	2.8	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	35	14	ug/kg	
126-98-7	Methacrylonitrile	ND	35	14	ug/kg	
74-83-9	Methyl bromide	ND	7.0	2.8	ug/kg	
74-87-3	Methyl chloride	ND	7.0	2.8	ug/kg	
74-88-4	Methyl iodide	ND	14	2.8	ug/kg	
80-62-6	Methyl methacrylate	ND	35	7.0	ug/kg	
74-95-3	Methylene bromide	ND	7.0	2.8	ug/kg	
75-09-2	Methylene chloride	ND	14	7.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	35	14	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	7.0	2.8	ug/kg	
91-20-3	Naphthalene	ND	7.0	2.8	ug/kg	
76-01-7	Pentachloroethane	ND	35	7.0	ug/kg	
107-12-0	Propionitrile	ND	70	14	ug/kg	
103-65-1	n-Propylbenzene	ND	7.0	2.8	ug/kg	
100-42-5	Styrene	ND	7.0	2.8	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	7.0	2.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	7.0	2.8	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	7.0	2.8	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	7.0	2.8	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.0	2.8	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	7.0	3.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.0	2.8	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	74.3
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	7.0	4.2	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	7.0	2.8	ug/kg	
127-18-4	Tetrachloroethylene	ND	7.0	2.8	ug/kg	
108-88-3	Toluene	ND	7.0	2.8	ug/kg	
79-01-6	Trichloroethylene	ND	7.0	2.8	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.0	2.8	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	35	14	ug/kg	
75-01-4	Vinyl chloride	ND	7.0	2.8	ug/kg	
108-05-4	Vinyl Acetate	ND	35	14	ug/kg	
	m,p-Xylene	ND	14	4.2	ug/kg	
95-47-6	o-Xylene	ND	7.0	2.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		78-123%
2037-26-5	Toluene-D8	93%		71-137%
460-00-4	4-Bromofluorobenzene	90%		61-157%
17060-07-0	1,2-Dichloroethane-D4	96%		74-125%

ND = Not detected MDL - Method Detection Limit
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J = Indicates an estimated value
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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	74.3
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L034665.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
Run #2							

	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	1100	430	ug/kg	
95-57-8	2-Chlorophenol	ND	210	43	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	43	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	43	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	43	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1100	430	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	430	86	ug/kg	
95-48-7	2-Methylphenol	ND	210	43	ug/kg	
	3&4-Methylphenol	ND	210	43	ug/kg	
88-75-5	2-Nitrophenol	ND	210	43	ug/kg	
100-02-7	4-Nitrophenol	ND	1100	430	ug/kg	
87-86-5	Pentachlorophenol	ND	1100	430	ug/kg	
108-95-2	Phenol	ND	210	43	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	43	ug/kg	
83-32-9	Acenaphthene	ND	210	43	ug/kg	
208-96-8	Acenaphthylene	ND	210	43	ug/kg	
120-12-7	Anthracene	ND	210	43	ug/kg	
92-87-5	Benzidine	ND	2100	1100	ug/kg	
56-55-3	Benzo(a)anthracene	ND	210	43	ug/kg	
50-32-8	Benzo(a)pyrene	ND	210	43	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	210	43	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	210	86	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	210	43	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	210	43	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	430	110	ug/kg	
100-51-6	Benzyl Alcohol	ND	210	43	ug/kg	
91-58-7	2-Chloronaphthalene	ND	210	43	ug/kg	
106-47-8	4-Chloroaniline	ND	430	170	ug/kg	
218-01-9	Chrysene	ND	210	43	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	210	43	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	210	86	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	74.3
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	210	43	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	210	43	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	210	43	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	210	43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	210	43	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	210	86	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	210	86	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	430	210	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	210	86	ug/kg	
132-64-9	Dibenzofuran	ND	210	43	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	430	110	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	430	210	ug/kg	
84-66-2	Diethyl phthalate	930	430	110	ug/kg	
131-11-3	Dimethyl phthalate	ND	430	110	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	430	210	ug/kg	
206-44-0	Fluoranthene	ND	210	43	ug/kg	
86-73-7	Fluorene	ND	210	43	ug/kg	
118-74-1	Hexachlorobenzene	ND	210	43	ug/kg	
87-68-3	Hexachlorobutadiene	ND	210	86	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	210	86	ug/kg	
67-72-1	Hexachloroethane	ND	210	86	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	210	86	ug/kg	
78-59-1	Isophorone	ND	210	43	ug/kg	
91-57-6	2-Methylnaphthalene	ND	210	43	ug/kg	
88-74-4	2-Nitroaniline	ND	430	110	ug/kg	
99-09-2	3-Nitroaniline	ND	430	110	ug/kg	
100-01-6	4-Nitroaniline	ND	430	150	ug/kg	
91-20-3	Naphthalene	ND	210	43	ug/kg	
98-95-3	Nitrobenzene	ND	210	43	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	210	86	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	43	ug/kg	
85-01-8	Phenanthrene	ND	210	43	ug/kg	
129-00-0	Pyrene	ND	210	86	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	210	43	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	59%		45-114%
4165-62-2	Phenol-d5	61%		44-124%
118-79-6	2,4,6-Tribromophenol	74%		50-128%

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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	74.3
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	61%		41-123%
321-60-8	2-Fluorobiphenyl	59%		46-122%
1718-51-0	Terphenyl-d14	75%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	74.3
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03311.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.2	0.89	ug/kg	
319-84-6	alpha-BHC	ND	2.2	0.89	ug/kg	
319-85-7	beta-BHC	ND	2.2	0.89	ug/kg	
319-86-8	delta-BHC	ND	2.2	0.89	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.2	0.89	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.2	0.89	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.2	0.89	ug/kg	
60-57-1	Dieldrin	ND	2.2	0.89	ug/kg	
72-54-8	4,4'-DDD	ND	4.4	0.89	ug/kg	
72-55-9	4,4'-DDE	1.1	4.4	0.89	ug/kg	J
50-29-3	4,4'-DDT	ND	4.4	1.3	ug/kg	
72-20-8	Endrin	ND	4.4	0.89	ug/kg	
1031-07-8	Endosulfan sulfate	ND	4.4	0.89	ug/kg	
7421-93-4	Endrin aldehyde	ND	4.4	1.8	ug/kg	
53494-70-5	Endrin ketone	ND	4.4	0.89	ug/kg	
959-98-8	Endosulfan-I	ND	2.2	0.89	ug/kg	
33213-65-9	Endosulfan-II	ND	4.4	0.89	ug/kg	
76-44-8	Heptachlor	ND	2.2	0.89	ug/kg	
1024-57-3	Heptachlor epoxide	ND	2.2	0.89	ug/kg	
72-43-5	Methoxychlor	ND	4.4	1.8	ug/kg	
8001-35-2	Toxaphene	ND	110	56	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		60-142%
2051-24-3	Decachlorobiphenyl	82%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-2		
Lab Sample ID:	F44814-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	74.3
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.0	1.1	0.52	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Barium	114	27	0.11	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.13 J	0.54	0.027	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Chromium	14.3	1.3	0.12	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Lead	5.3 J	13	0.27	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.0092 J	0.099	0.0079	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium	0.27 U	13	0.27	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Silver	0.12 U	1.3	0.12	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5326
(3) Prep QC Batch: MP10603
(4) Prep QC Batch: MP10628

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	82.1
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040991.D	1	11/03/06	SH	10/28/06 11:45	n/a	VG1574
Run #2							

	Initial Weight
Run #1	5.61 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	54	27	ug/kg	
75-05-8	Acetonitrile	ND	54	38	ug/kg	
107-02-8	Acrolein	ND	27	16	ug/kg	
107-13-1	Acrylonitrile	ND	27	14	ug/kg	
107-05-1	Allyl chloride	ND	27	5.4	ug/kg	
71-43-2	Benzene	ND	5.4	2.2	ug/kg	
100-44-7	Benzyl Chloride	ND	5.4	3.3	ug/kg	
108-86-1	Bromobenzene	ND	5.4	2.2	ug/kg	
74-97-5	Bromochloromethane	ND	5.4	2.2	ug/kg	
75-27-4	Bromodichloromethane	ND	5.4	2.2	ug/kg	
75-25-2	Bromoform	ND	5.4	2.2	ug/kg	
104-51-8	n-Butylbenzene	ND	5.4	3.3	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.4	2.2	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.4	2.2	ug/kg	
108-90-7	Chlorobenzene	ND	5.4	2.2	ug/kg	
75-00-3	Chloroethane	ND	5.4	3.3	ug/kg	
67-66-3	Chloroform	ND	5.4	2.2	ug/kg	
544-10-5	1-Chlorohexane	ND	5.4	2.2	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.4	2.2	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.4	2.2	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	27	14	ug/kg	
75-15-0	Carbon disulfide	ND	5.4	2.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.4	2.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.4	2.2	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.4	2.2	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.4	2.2	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.4	3.3	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.4	2.2	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.4	2.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.4	2.2	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.4	2.2	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.4	2.2	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	82.1
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	5.4	2.2	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.4	3.3	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.4	2.2	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.4	2.2	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	27	5.4	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.4	2.2	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.4	2.2	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.4	2.2	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.4	2.2	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.4	2.2	ug/kg	
100-41-4	Ethylbenzene	ND	5.4	2.2	ug/kg	
97-63-2	Ethyl methacrylate	ND	27	5.4	ug/kg	
76-13-1	Freon 113	ND	5.4	2.2	ug/kg	
591-78-6	2-Hexanone	ND	27	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.4	2.2	ug/kg	
110-54-3	Hexane	ND	5.4	3.3	ug/kg	
98-82-8	Isopropylbenzene	ND	5.4	2.2	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.4	2.2	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	27	11	ug/kg	
126-98-7	Methacrylonitrile	ND	27	11	ug/kg	
74-83-9	Methyl bromide	ND	5.4	2.2	ug/kg	
74-87-3	Methyl chloride	ND	5.4	2.2	ug/kg	
74-88-4	Methyl iodide	ND	11	2.2	ug/kg	
80-62-6	Methyl methacrylate	ND	27	5.4	ug/kg	
74-95-3	Methylene bromide	ND	5.4	2.2	ug/kg	
75-09-2	Methylene chloride	ND	11	5.4	ug/kg	
78-93-3	Methyl ethyl ketone	ND	27	11	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.4	2.2	ug/kg	
91-20-3	Naphthalene	ND	5.4	2.2	ug/kg	
76-01-7	Pentachloroethane	ND	27	5.4	ug/kg	
107-12-0	Propionitrile	ND	54	11	ug/kg	
103-65-1	n-Propylbenzene	ND	5.4	2.2	ug/kg	
100-42-5	Styrene	ND	5.4	2.2	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.4	2.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.4	2.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.4	2.2	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.4	2.2	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.4	2.2	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.4	2.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.4	2.2	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	82.1
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.4	3.3	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.4	2.2	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.4	2.2	ug/kg	
108-88-3	Toluene	ND	5.4	2.2	ug/kg	
79-01-6	Trichloroethylene	ND	5.4	2.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.4	2.2	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	27	11	ug/kg	
75-01-4	Vinyl chloride	ND	5.4	2.2	ug/kg	
108-05-4	Vinyl Acetate	ND	27	11	ug/kg	
	m,p-Xylene	ND	11	3.3	ug/kg	
95-47-6	o-Xylene	ND	5.4	2.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		78-123%
2037-26-5	Toluene-D8	92%		71-137%
460-00-4	4-Bromofluorobenzene	92%		61-157%
17060-07-0	1,2-Dichloroethane-D4	95%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

3.2 3

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	82.1
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L034666.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	990	400	ug/kg	
95-57-8	2-Chlorophenol	ND	200	40	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	40	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	40	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	990	400	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	400	79	ug/kg	
95-48-7	2-Methylphenol	ND	200	40	ug/kg	
	3&4-Methylphenol	ND	200	40	ug/kg	
88-75-5	2-Nitrophenol	ND	200	40	ug/kg	
100-02-7	4-Nitrophenol	ND	990	400	ug/kg	
87-86-5	Pentachlorophenol	ND	990	400	ug/kg	
108-95-2	Phenol	ND	200	40	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	40	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	40	ug/kg	
83-32-9	Acenaphthene	ND	200	40	ug/kg	
208-96-8	Acenaphthylene	ND	200	40	ug/kg	
120-12-7	Anthracene	ND	200	40	ug/kg	
92-87-5	Benzidine	ND	2000	990	ug/kg	
56-55-3	Benzo(a)anthracene	ND	200	40	ug/kg	
50-32-8	Benzo(a)pyrene	ND	200	40	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	200	40	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	200	79	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	200	40	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	200	40	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	400	99	ug/kg	
100-51-6	Benzyl Alcohol	ND	200	40	ug/kg	
91-58-7	2-Chloronaphthalene	ND	200	40	ug/kg	
106-47-8	4-Chloroaniline	ND	400	160	ug/kg	
218-01-9	Chrysene	ND	200	40	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	200	40	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	200	79	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	82.1
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	200	40	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	200	40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	40	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	40	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	40	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	200	79	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	200	79	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	400	200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	200	79	ug/kg	
132-64-9	Dibenzofuran	ND	200	40	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	400	99	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	400	200	ug/kg	
84-66-2	Diethyl phthalate	ND	400	99	ug/kg	
131-11-3	Dimethyl phthalate	ND	400	99	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	400	200	ug/kg	
206-44-0	Fluoranthene	ND	200	40	ug/kg	
86-73-7	Fluorene	ND	200	40	ug/kg	
118-74-1	Hexachlorobenzene	ND	200	40	ug/kg	
87-68-3	Hexachlorobutadiene	ND	200	79	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	200	79	ug/kg	
67-72-1	Hexachloroethane	ND	200	79	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	200	79	ug/kg	
78-59-1	Isophorone	ND	200	40	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	40	ug/kg	
88-74-4	2-Nitroaniline	ND	400	99	ug/kg	
99-09-2	3-Nitroaniline	ND	400	99	ug/kg	
100-01-6	4-Nitroaniline	ND	400	140	ug/kg	
91-20-3	Naphthalene	ND	200	40	ug/kg	
98-95-3	Nitrobenzene	ND	200	40	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	200	79	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	40	ug/kg	
85-01-8	Phenanthrene	ND	200	40	ug/kg	
129-00-0	Pyrene	ND	200	79	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	200	40	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%		45-114%
4165-62-2	Phenol-d5	56%		44-124%
118-79-6	2,4,6-Tribromophenol	63%		50-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	82.1
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	53%		41-123%
321-60-8	2-Fluorobiphenyl	54%		46-122%
1718-51-0	Terphenyl-d14	63%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	82.1
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03312.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.0	0.80	ug/kg	
319-84-6	alpha-BHC	ND	2.0	0.80	ug/kg	
319-85-7	beta-BHC	ND	2.0	0.80	ug/kg	
319-86-8	delta-BHC	ND	2.0	0.80	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.0	0.80	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.0	0.80	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.0	0.80	ug/kg	
60-57-1	Dieldrin	ND	2.0	0.80	ug/kg	
72-54-8	4,4'-DDD	ND	4.0	0.80	ug/kg	
72-55-9	4,4'-DDE	ND	4.0	0.80	ug/kg	
50-29-3	4,4'-DDT	ND	4.0	1.2	ug/kg	
72-20-8	Endrin	ND	4.0	0.80	ug/kg	
1031-07-8	Endosulfan sulfate	ND	4.0	0.80	ug/kg	
7421-93-4	Endrin aldehyde	ND	4.0	1.6	ug/kg	
53494-70-5	Endrin ketone	ND	4.0	0.80	ug/kg	
959-98-8	Endosulfan-I	ND	2.0	0.80	ug/kg	
33213-65-9	Endosulfan-II	ND	4.0	0.80	ug/kg	
76-44-8	Heptachlor	ND	2.0	0.80	ug/kg	
1024-57-3	Heptachlor epoxide	ND	2.0	0.80	ug/kg	
72-43-5	Methoxychlor	ND	4.0	1.6	ug/kg	
8001-35-2	Toxaphene	ND	100	50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	91%		60-142%
2051-24-3	Decachlorobiphenyl	90%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-7		
Lab Sample ID:	F44814-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	82.1
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.1	0.90	0.44	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Barium	87.2	23	0.090	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.024 J	0.45	0.023	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Chromium	11.9	1.1	0.10	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Lead	4.2 J	11	0.23	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.021 J	0.091	0.0073	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium	0.23 U	11	0.23	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]
Silver	0.10 U	1.1	0.10	mg/kg	1	11/02/06	11/03/06	DM	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5326
(3) Prep QC Batch: MP10603
(4) Prep QC Batch: MP10628

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-SB2[illegible]EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	J026078.D	1	11/13/06	AB	n/a	n/a	VJ1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	2.0	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	2.8	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		86-115%
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	93%		86-112%
460-00-4	4-Bromofluorobenzene	103%		83-119%

(a) Sample analyzed beyond hold time; reported results are considered minimum values.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L034505.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	9.8	ug/l	
95-57-8	2-Chlorophenol	ND	4.9	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.9	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	4.9	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.9	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	9.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.8	4.9	ug/l	
95-48-7	2-Methylphenol	ND	4.9	2.0	ug/l	
	3&4-Methylphenol	ND	4.9	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	4.9	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	9.8	ug/l	
87-86-5	Pentachlorophenol	ND	25	9.8	ug/l	
108-95-2	Phenol	ND	4.9	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.9	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.9	2.0	ug/l	
83-32-9	Acenaphthene	ND	4.9	0.98	ug/l	
208-96-8	Acenaphthylene	ND	4.9	0.98	ug/l	
120-12-7	Anthracene	ND	4.9	0.98	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	4.9	0.98	ug/l	
50-32-8	Benzo(a)pyrene	ND	4.9	0.98	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	4.9	0.98	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	4.9	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	4.9	0.98	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	4.9	0.98	ug/l	
85-68-7	Butyl benzyl phthalate	ND	4.9	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	4.9	0.98	ug/l	
91-58-7	2-Chloronaphthalene	ND	4.9	0.98	ug/l	
106-47-8	4-Chloroaniline	ND	9.8	3.9	ug/l	
218-01-9	Chrysene	ND	4.9	0.98	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	4.9	0.98	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	4.9	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	4.9	0.98	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	4.9	0.98	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	4.9	0.98	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	4.9	0.98	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	4.9	0.98	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	4.9	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	4.9	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	9.8	4.9	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	4.9	2.0	ug/l	
132-64-9	Dibenzofuran	ND	4.9	0.98	ug/l	
84-74-2	Di-n-butyl phthalate	ND	4.9	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	4.9	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	4.9	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	4.9	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	4.9	2.5	ug/l	
206-44-0	Fluoranthene	ND	4.9	0.98	ug/l	
86-73-7	Fluorene	ND	4.9	0.98	ug/l	
118-74-1	Hexachlorobenzene	ND	4.9	0.98	ug/l	
87-68-3	Hexachlorobutadiene	ND	4.9	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	4.9	2.0	ug/l	
67-72-1	Hexachloroethane	ND	4.9	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.9	2.0	ug/l	
78-59-1	Isophorone	ND	4.9	0.98	ug/l	
91-57-6	2-Methylnaphthalene	ND	4.9	0.98	ug/l	
88-74-4	2-Nitroaniline	ND	9.8	3.9	ug/l	
99-09-2	3-Nitroaniline	ND	9.8	3.9	ug/l	
100-01-6	4-Nitroaniline	ND	9.8	3.9	ug/l	
91-20-3	Naphthalene	ND	4.9	0.98	ug/l	
98-95-3	Nitrobenzene	ND	4.9	0.98	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	4.9	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.9	2.0	ug/l	
85-01-8	Phenanthrene	ND	4.9	0.98	ug/l	
129-00-0	Pyrene	ND	4.9	0.98	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	4.9	0.98	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	31%		19-90%
4165-62-2	Phenol-d5	19%		10-68%
118-79-6	2,4,6-Tribromophenol	53%		36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		49-119%
321-60-8	2-Fluorobiphenyl	57%		45-118%
1718-51-0	Terphenyl-d14	70%		46-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03035.D	1	11/05/06	SKW	10/31/06	OP18355	GTT110
Run #2							

	Initial Volume	Final Volume
Run #1	1030 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.049	0.019	ug/l	
319-84-6	alpha-BHC	ND	0.049	0.015	ug/l	
319-85-7	beta-BHC	ND	0.049	0.019	ug/l	
319-86-8	delta-BHC	ND	0.049	0.019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.049	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.049	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.049	0.015	ug/l	
60-57-1	Dieldrin	ND	0.049	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.097	0.019	ug/l	
72-55-9	4,4'-DDE	ND	0.097	0.019	ug/l	
50-29-3	4,4'-DDT	ND	0.097	0.019	ug/l	
72-20-8	Endrin	ND	0.097	0.039	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.097	0.019	ug/l	
7421-93-4	Endrin aldehyde	ND	0.097	0.039	ug/l	
53494-70-5	Endrin ketone	ND	0.097	0.019	ug/l	
959-98-8	Endosulfan-I	ND	0.049	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.097	0.019	ug/l	
76-44-8	Heptachlor	ND	0.049	0.019	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.049	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.097	0.039	ug/l	
8001-35-2	Toxaphene	ND	2.4	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		60-138%
2051-24-3	Decachlorobiphenyl	81%		31-148%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB22-EB		
Lab Sample ID:	F44814-3	Date Sampled:	10/27/06
Matrix:	AQ - Equipment Blank	Date Received:	10/28/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.8 U	10	2.8	ug/l	1	11/01/06	11/07/06	RS	SW846 6010B [3]	SW846 3010A [6]
Barium	0.76 J	200	0.40	ug/l	1	11/01/06	11/02/06	RS	SW846 6010B [2]	SW846 3010A [5]
Cadmium	0.30 U	5.0	0.30	ug/l	1	11/01/06	11/02/06	RS	SW846 6010B [2]	SW846 3010A [5]
Chromium	0.60 U	10	0.60	ug/l	1	11/01/06	11/02/06	RS	SW846 6010B [2]	SW846 3010A [5]
Lead	2.7 J	5.0	1.7	ug/l	1	11/01/06	11/02/06	RS	SW846 6010B [2]	SW846 3010A [5]
Mercury	0.10 U	1.0	0.10	ug/l	1	10/30/06	10/30/06	MS	SW846 7470A [1]	SW846 7470A [4]
Selenium	2.8 U	10	2.8	ug/l	1	11/01/06	11/07/06	RS	SW846 6010B [3]	SW846 3010A [6]
Silver	0.90 U	10	0.90	ug/l	1	11/01/06	11/02/06	RS	SW846 6010B [2]	SW846 3010A [5]

(1) Instrument QC Batch: MA5314
(2) Instrument QC Batch: MA5320
(3) Instrument QC Batch: MA5331
(4) Prep QC Batch: MP10594
(5) Prep QC Batch: MP10617
(6) Prep QC Batch: MP10652

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44814-4	Date Sampled:	10/27/06
Matrix:	AQ - Trip Blank Water	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	J026079.D	1	11/13/06	AB	n/a	n/a	VJ1069
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44814-4	Date Sampled:	10/27/06
Matrix:	AQ - Trip Blank Water	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44814-4	Date Sampled:	10/27/06
Matrix:	AQ - Trip Blank Water	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		86-115%
17060-07-0	1,2-Dichloroethane-D4	104%		73-126%
2037-26-5	Toluene-D8	93%		86-112%
460-00-4	4-Bromofluorobenzene	104%		83-119%

(a) Sample analyzed beyond hold time; reported results are considered minimum values.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44814-5	Date Sampled:	10/27/06
Matrix:	SO - Trip Blank Soil	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040983.D	1	11/02/06	SH	n/a	n/a	VG1573
Run #2							

	Initial Weight
Run #1	5.00 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	25	ug/kg	
75-05-8	Acetonitrile	ND	50	35	ug/kg	
107-02-8	Acrolein	ND	25	15	ug/kg	
107-13-1	Acrylonitrile	ND	25	13	ug/kg	
107-05-1	Allyl chloride	ND	25	5.0	ug/kg	
71-43-2	Benzene	ND	5.0	2.0	ug/kg	
100-44-7	Benzyl Chloride	ND	5.0	3.0	ug/kg	
108-86-1	Bromobenzene	ND	5.0	2.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	2.0	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	2.0	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	3.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	3.0	ug/kg	
67-66-3	Chloroform	ND	5.0	2.0	ug/kg	
544-10-5	1-Chlorohexane	ND	5.0	2.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	25	13	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	2.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	2.0	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	3.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	2.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	2.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	2.0	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44814-5	Date Sampled:	10/27/06
Matrix:	SO - Trip Blank Soil	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	5.0	2.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	3.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	25	5.0	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	2.0	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	2.0	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	2.0	ug/kg	
97-63-2	Ethyl methacrylate	ND	25	5.0	ug/kg	
76-13-1	Freon 113	ND	5.0	2.0	ug/kg	
591-78-6	2-Hexanone	ND	25	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/kg	
110-54-3	Hexane	ND	5.0	3.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	2.0	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	25	10	ug/kg	
126-98-7	Methacrylonitrile	ND	25	10	ug/kg	
74-83-9	Methyl bromide	ND	5.0	2.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	2.0	ug/kg	
74-88-4	Methyl iodide	ND	10	2.0	ug/kg	
80-62-6	Methyl methacrylate	ND	25	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	2.0	ug/kg	
75-09-2	Methylene chloride	ND	10	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	25	10	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	2.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	2.0	ug/kg	
76-01-7	Pentachloroethane	ND	25	5.0	ug/kg	
107-12-0	Propionitrile	ND	50	10	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	2.0	ug/kg	
100-42-5	Styrene	ND	5.0	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	2.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	2.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	2.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	2.0	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44814-5	Date Sampled:	10/27/06
Matrix:	SO - Trip Blank Soil	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	3.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	2.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	2.0	ug/kg	
108-88-3	Toluene	ND	5.0	2.0	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	2.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	2.0	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	25	10	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	2.0	ug/kg	
108-05-4	Vinyl Acetate	ND	25	10	ug/kg	
	m,p-Xylene	ND	10	3.0	ug/kg	
95-47-6	o-Xylene	ND	5.0	2.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		78-123%
2037-26-5	Toluene-D8	92%		71-137%
460-00-4	4-Bromofluorobenzene	88%		61-157%
17060-07-0	1,2-Dichloroethane-D4	96%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F44814

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

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Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 102720062

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 09

Client Name: USACE

Collected by: Jim Moore

Sample Analysis Requested [3]: VOC 8260; SVOC 8270; Pest 8081; BCTLA Metals 60/6/7/6/78

Quality Assurance Samples [4]: Ambient Blank Lot Control Number; Equipment Blank Lot Control Number; Trip Blank Lot Control Number

Field Sample ID (10 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hh:mm)	Sample Depth (beginning - ending)		SA Code [2]	Sample Number [3]	Sample Matrix [4]	VOC 8260	SVOC 8270	Pest 8081	BCTLA Metals 60/6/7/6/78					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Order ID
1 *SD-08-SB22-2	SD-08-SB22-2	27/10/2006	0945	1'	2'	N	1	SO	4	12	12	12	12							2
2 *SD-08-SB22-7	SD-08-SB22-7	27/10/2006	1000	6'	7'	N	1	SO	4	12	12	12	12							2
2 *SD-08-SB22-7ms	SD-08-SB22-7ms	27/10/2006	1000	6'	7'	MS	1	SO	4	12	12	12	12							2
2 *SD-08-SB22-7msd	SD-08-SB22-7msd	27/10/2006	1000	6'	7'	SD	1	SO	4	12	12	12	12							2
3 SD-08-SB22-EB	SD-08-SB22-EB	27/10/2006	1000	0'	0'	EB	1	AQ	8	12	12	12	12							2
4 Trip Blank	Field QC	27/10/2006	0945			TB		AQ	2	12										2

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15 * 8oz jars Ok'ed by lab
Orlando, FL 32811 Email Results to rrenvironmental@rlanal.com;kevinp@rlanal.com;mdauben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	10-27-2006	1600	1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:
Method of Shipment: FEDEX Airbill Number:
Analytical Lab: Accutest Lab Delivery Location: Orlando FL
Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-03-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-a) Sample, FR = Field Replicate (-b) Sample, EB = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number. Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OS = Soil Gas, WO = Groundwater, WS = Surface Water, AO = Soil, SS = Sediment, SL = Sludge, SB = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

C-8

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (dd-mmm-yyyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

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F44814: Chain of Custody
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ACCUTEST

F44814

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F44814 CLIENT: Bhate PROJECT: SD 08

DATE/TIME RECEIVED: 10/25/06 9:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 2.8

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8581 0350 1606

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [x] RECEIVED WATER TRIP BLANK
- [x] RECEIVED SOIL TRIP BLANK

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

MISC. INFORMATION

NUMBER OF ENCORES ? 18

NUMBER OF 5035 FIELD KITS ? 0

NUMBER OR LAB FILTERED METALS ? 0

SUMMARY OF COMMENTS: Soil trip not on coc + water trip on COC

TECHNICIAN SIGNATURE/DATE: 10/25/06 TECHNICIAN SIGNATURE/DATE: ASBD 10/03/06

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F44814: Chain of Custody
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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-MB	G0040961.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	25	ug/kg	
75-05-8	Acetonitrile	ND	50	35	ug/kg	
107-02-8	Acrolein	ND	25	15	ug/kg	
107-13-1	Acrylonitrile	ND	25	13	ug/kg	
107-05-1	Allyl chloride	ND	25	5.0	ug/kg	
71-43-2	Benzene	ND	5.0	2.0	ug/kg	
100-44-7	Benzyl Chloride	ND	5.0	3.0	ug/kg	
108-86-1	Bromobenzene	ND	5.0	2.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	2.0	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	2.0	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	3.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	3.0	ug/kg	
67-66-3	Chloroform	ND	5.0	2.0	ug/kg	
544-10-5	1-Chlorohexane	ND	5.0	2.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	25	13	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	2.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	2.0	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	3.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	2.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	2.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	2.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	3.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-MB	G0040961.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	25	5.0	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	2.0	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	2.0	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	2.0	ug/kg	
97-63-2	Ethyl methacrylate	ND	25	5.0	ug/kg	
76-13-1	Freon 113	ND	5.0	2.0	ug/kg	
591-78-6	2-Hexanone	ND	25	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/kg	
110-54-3	Hexane	ND	5.0	3.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	2.0	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	25	10	ug/kg	
126-98-7	Methacrylonitrile	ND	25	10	ug/kg	
74-83-9	Methyl bromide	ND	5.0	2.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	2.0	ug/kg	
74-88-4	Methyl iodide	ND	10	2.0	ug/kg	
80-62-6	Methyl methacrylate	ND	25	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	2.0	ug/kg	
75-09-2	Methylene chloride	ND	10	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	25	10	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	2.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	2.0	ug/kg	
76-01-7	Pentachloroethane	ND	25	5.0	ug/kg	
107-12-0	Propionitrile	ND	50	10	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	2.0	ug/kg	
100-42-5	Styrene	ND	5.0	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	2.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	2.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	2.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	2.0	ug/kg	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-MB	G0040961.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	3.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	2.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	2.0	ug/kg	
108-88-3	Toluene	ND	5.0	2.0	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	2.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	2.0	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	25	10	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	2.0	ug/kg	
108-05-4	Vinyl Acetate	ND	25	10	ug/kg	
	m,p-Xylene	ND	10	3.0	ug/kg	
95-47-6	o-Xylene	ND	5.0	2.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	101%	78-123%
2037-26-5	Toluene-D8	91%	71-137%
460-00-4	4-Bromofluorobenzene	94%	61-157%
17060-07-0	1,2-Dichloroethane-D4	97%	74-125%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1574-MB	G0040990.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	25	ug/kg	
75-05-8	Acetonitrile	ND	50	35	ug/kg	
107-02-8	Acrolein	ND	25	15	ug/kg	
107-13-1	Acrylonitrile	ND	25	13	ug/kg	
107-05-1	Allyl chloride	ND	25	5.0	ug/kg	
71-43-2	Benzene	ND	5.0	2.0	ug/kg	
100-44-7	Benzyl Chloride	ND	5.0	3.0	ug/kg	
108-86-1	Bromobenzene	ND	5.0	2.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	2.0	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	2.0	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	3.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	3.0	ug/kg	
67-66-3	Chloroform	ND	5.0	2.0	ug/kg	
544-10-5	1-Chlorohexane	ND	5.0	2.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	25	13	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	2.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	2.0	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	3.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	2.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	2.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	2.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	3.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1574-MB	G0040990.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	25	5.0	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	2.0	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	2.0	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	2.0	ug/kg	
97-63-2	Ethyl methacrylate	ND	25	5.0	ug/kg	
76-13-1	Freon 113	ND	5.0	2.0	ug/kg	
591-78-6	2-Hexanone	ND	25	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/kg	
110-54-3	Hexane	ND	5.0	3.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	2.0	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	25	10	ug/kg	
126-98-7	Methacrylonitrile	ND	25	10	ug/kg	
74-83-9	Methyl bromide	ND	5.0	2.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	2.0	ug/kg	
74-88-4	Methyl iodide	ND	10	2.0	ug/kg	
80-62-6	Methyl methacrylate	ND	25	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	2.0	ug/kg	
75-09-2	Methylene chloride	ND	10	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	25	10	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	2.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	2.0	ug/kg	
76-01-7	Pentachloroethane	ND	25	5.0	ug/kg	
107-12-0	Propionitrile	ND	50	10	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	2.0	ug/kg	
100-42-5	Styrene	ND	5.0	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	2.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	2.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	2.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	2.0	ug/kg	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1574-MB	G0040990.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	3.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	2.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	2.0	ug/kg	
108-88-3	Toluene	ND	5.0	2.0	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	2.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	2.0	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	25	10	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	2.0	ug/kg	
108-05-4	Vinyl Acetate	ND	25	10	ug/kg	
	m,p-Xylene	ND	10	3.0	ug/kg	
95-47-6	o-Xylene	ND	5.0	2.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	100%	78-123%
2037-26-5	Toluene-D8	89%	71-137%
460-00-4	4-Bromofluorobenzene	93%	61-157%
17060-07-0	1,2-Dichloroethane-D4	96%	74-125%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1069-MB	J026070.D	1	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1069-MB	J026070.D	1	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1069-MB	J026070.D	1	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	104%	86-115%
17060-07-0	1,2-Dichloroethane-D4	101%	73-126%
2037-26-5	Toluene-D8	93%	86-112%
460-00-4	4-Bromofluorobenzene	101%	83-119%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-BS	G0040960.D	1	11/02/06	SH	n/a	n/a	VG1573

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	250	233	93	51-136
75-05-8	Acetonitrile	500	425	85	50-150 [a]
107-02-8	Acrolein	250	464	186*	28-180
107-13-1	Acrylonitrile	250	258	103	43-151
107-05-1	Allyl chloride	50	47.6	95	50-150 [a]
71-43-2	Benzene	50	55.8	112	74-124
100-44-7	Benzyl Chloride	50	51.4	103	50-150 [a]
108-86-1	Bromobenzene	50	53.2	106	78-117
74-97-5	Bromochloromethane	50	50.9	102	77-126
75-27-4	Bromodichloromethane	50	51.9	104	74-124
75-25-2	Bromoform	50	49.9	100	79-127
104-51-8	n-Butylbenzene	50	56.5	113	75-131
135-98-8	sec-Butylbenzene	50	58.1	116	78-128
98-06-6	tert-Butylbenzene	50	56.1	112	76-126
108-90-7	Chlorobenzene	50	54.7	109	78-117
75-00-3	Chloroethane	50	60.4	121	63-147
67-66-3	Chloroform	50	56.9	114	75-121
544-10-5	1-Chlorohexane	50	58.2	116	76-137
95-49-8	o-Chlorotoluene	50	54.5	109	79-124
106-43-4	p-Chlorotoluene	50	56.0	112	79-124
110-75-8	2-Chloroethyl vinyl ether	250	264	106	31-165
75-15-0	Carbon disulfide	50	59.6	119	59-148
56-23-5	Carbon tetrachloride	50	57.9	116	67-131
75-34-3	1,1-Dichloroethane	50	57.3	115	71-118
75-35-4	1,1-Dichloroethylene	50	56.3	113	64-126
563-58-6	1,1-Dichloropropene	50	56.8	114	73-132
96-12-8	1,2-Dibromo-3-chloropropane	50	47.7	95	71-128
106-93-4	1,2-Dibromoethane	50	51.2	102	78-117
107-06-2	1,2-Dichloroethane	50	52.9	106	72-120
78-87-5	1,2-Dichloropropane	50	54.3	109	74-126
142-28-9	1,3-Dichloropropane	50	51.0	102	77-117
594-20-7	2,2-Dichloropropane	50	59.5	119	66-126
124-48-1	Dibromochloromethane	50	51.4	103	78-120
75-71-8	Dichlorodifluoromethane	50	31.8	64	33-172
156-59-2	cis-1,2-Dichloroethylene	50	53.9	108	75-124
10061-01-5	cis-1,3-Dichloropropene	50	55.3	111	72-120

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-BS	G0040960.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	50	46.8	94	50-150 [a]
541-73-1	m-Dichlorobenzene	50	56.5	113	79-119
95-50-1	o-Dichlorobenzene	50	55.7	111	78-119
106-46-7	p-Dichlorobenzene	50	57.4	115	78-117
156-60-5	trans-1,2-Dichloroethylene	50	55.6	111	70-122
10061-02-6	trans-1,3-Dichloropropene	50	56.9	114	75-118
100-41-4	Ethylbenzene	50	54.4	109	77-120
97-63-2	Ethyl methacrylate	50	47.5	95	50-150 [a]
76-13-1	Freon 113	50	58.2	116	66-147
591-78-6	2-Hexanone	250	232	93	68-136
87-68-3	Hexachlorobutadiene	50	59.1	118	69-139
110-54-3	Hexane	50	57.7	115	55-166
98-82-8	Isopropylbenzene	50	58.7	117	79-134
99-87-6	p-Isopropyltoluene	50	58.4	117	80-134
108-10-1	4-Methyl-2-pentanone	250	231	92	69-136
126-98-7	Methacrylonitrile	500	488	98	50-150 [a]
74-83-9	Methyl bromide	50	51.7	103	52-156
74-87-3	Methyl chloride	50	58.2	116	63-142
74-88-4	Methyl iodide	50	53.0	106	65-133
80-62-6	Methyl methacrylate	50	46.4	93	63-143
74-95-3	Methylene bromide	50	52.3	105	74-121
75-09-2	Methylene chloride	50	57.1	114	51-142
78-93-3	Methyl ethyl ketone	250	233	93	63-138
1634-04-4	Methyl Tert Butyl Ether	50	50.7	101	77-131
91-20-3	Naphthalene	50	52.3	105	75-134
76-01-7	Pentachloroethane	50	55.1	110	50-150 [a]
107-12-0	Propionitrile	500	496	99	50-150 [a]
103-65-1	n-Propylbenzene	50	56.5	113	77-125
100-42-5	Styrene	50	53.6	107	74-120
630-20-6	1,1,1,2-Tetrachloroethane	50	52.7	105	76-118
71-55-6	1,1,1-Trichloroethane	50	58.3	117	70-131
79-34-5	1,1,2,2-Tetrachloroethane	50	51.8	104	76-121
79-00-5	1,1,2-Trichloroethane	50	50.0	100	77-118
87-61-6	1,2,3-Trichlorobenzene	50	56.5	113	76-129
96-18-4	1,2,3-Trichloropropane	50	52.3	105	75-121
120-82-1	1,2,4-Trichlorobenzene	50	56.3	113	73-128

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-BS	G0040960.D	1	11/02/06	SH	n/a	n/a	VG1573

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	50	55.1	110	79-121
108-67-8	1,3,5-Trimethylbenzene	50	56.2	112	78-126
127-18-4	Tetrachloroethylene	50	53.9	108	68-127
108-88-3	Toluene	50	54.0	108	74-118
79-01-6	Trichloroethylene	50	57.9	116	72-122
75-69-4	Trichlorofluoromethane	50	54.9	110	60-147
110-57-6	Trans-1,4-Dichloro-2-Butene	50	50.9	102	68-131
75-01-4	Vinyl chloride	50	45.4	91	64-144
108-05-4	Vinyl Acetate	250	354	142*	47-132
	m,p-Xylene	100	112	112	79-122
95-47-6	o-Xylene	50	54.7	109	75-123

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	78-123%
2037-26-5	Toluene-D8	97%	71-137%
460-00-4	4-Bromofluorobenzene	96%	61-157%
17060-07-0	1,2-Dichloroethane-D4	98%	74-125%

(a) Advisory control limits.

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1574-BS	G0040989.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	250	245	98	51-136
75-05-8	Acetonitrile	500	482	96	50-150 [a]
107-02-8	Acrolein	250	393	157	28-180
107-13-1	Acrylonitrile	250	277	111	43-151
107-05-1	Allyl chloride	50	43.4	87	50-150 [a]
71-43-2	Benzene	50	49.7	99	74-124
100-44-7	Benzyl Chloride	50	49.9	100	50-150 [a]
108-86-1	Bromobenzene	50	47.9	96	78-117
74-97-5	Bromochloromethane	50	49.4	99	77-126
75-27-4	Bromodichloromethane	50	47.7	95	74-124
75-25-2	Bromoform	50	48.2	96	79-127
104-51-8	n-Butylbenzene	50	52.5	105	75-131
135-98-8	sec-Butylbenzene	50	51.1	102	78-128
98-06-6	tert-Butylbenzene	50	49.2	98	76-126
108-90-7	Chlorobenzene	50	50.1	100	78-117
75-00-3	Chloroethane	50	59.2	118	63-147
67-66-3	Chloroform	50	51.5	103	75-121
544-10-5	1-Chlorohexane	50	50.3	101	76-137
95-49-8	o-Chlorotoluene	50	47.8	96	79-124
106-43-4	p-Chlorotoluene	50	49.0	98	79-124
110-75-8	2-Chloroethyl vinyl ether	250	259	104	31-165
75-15-0	Carbon disulfide	50	51.6	103	59-148
56-23-5	Carbon tetrachloride	50	50.6	101	67-131
75-34-3	1,1-Dichloroethane	50	50.2	100	71-118
75-35-4	1,1-Dichloroethylene	50	49.5	99	64-126
563-58-6	1,1-Dichloropropene	50	50.8	102	73-132
96-12-8	1,2-Dibromo-3-chloropropane	50	46.8	94	71-128
106-93-4	1,2-Dibromoethane	50	49.9	100	78-117
107-06-2	1,2-Dichloroethane	50	50.1	100	72-120
78-87-5	1,2-Dichloropropane	50	49.6	99	74-126
142-28-9	1,3-Dichloropropane	50	47.0	94	77-117
594-20-7	2,2-Dichloropropane	50	52.7	105	66-126
124-48-1	Dibromochloromethane	50	46.8	94	78-120
75-71-8	Dichlorodifluoromethane	50	41.5	83	33-172
156-59-2	cis-1,2-Dichloroethylene	50	47.6	95	75-124
10061-01-5	cis-1,3-Dichloropropene	50	51.6	103	72-120

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1574-BS	G0040989.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	50	48.4	97	50-150 [a]
541-73-1	m-Dichlorobenzene	50	49.7	99	79-119
95-50-1	o-Dichlorobenzene	50	49.9	100	78-119
106-46-7	p-Dichlorobenzene	50	50.0	100	78-117
156-60-5	trans-1,2-Dichloroethylene	50	49.7	99	70-122
10061-02-6	trans-1,3-Dichloropropene	50	52.9	106	75-118
100-41-4	Ethylbenzene	50	48.0	96	77-120
97-63-2	Ethyl methacrylate	50	47.3	95	50-150 [a]
76-13-1	Freon 113	50	51.7	103	66-147
591-78-6	2-Hexanone	250	234	94	68-136
87-68-3	Hexachlorobutadiene	50	48.7	97	69-139
110-54-3	Hexane	50	48.4	97	55-166
98-82-8	Isopropylbenzene	50	51.9	104	79-134
99-87-6	p-Isopropyltoluene	50	50.5	101	80-134
108-10-1	4-Methyl-2-pentanone	250	235	94	69-136
126-98-7	Methacrylonitrile	500	508	102	50-150 [a]
74-83-9	Methyl bromide	50	46.7	93	52-156
74-87-3	Methyl chloride	50	64.3	129	63-142
74-88-4	Methyl iodide	50	48.7	97	65-133
80-62-6	Methyl methacrylate	50	46.6	93	63-143
74-95-3	Methylene bromide	50	50.0	100	74-121
75-09-2	Methylene chloride	50	51.1	102	51-142
78-93-3	Methyl ethyl ketone	250	241	96	63-138
1634-04-4	Methyl Tert Butyl Ether	50	49.2	98	77-131
91-20-3	Naphthalene	50	47.5	95	75-134
76-01-7	Pentachloroethane	50	52.3	105	50-150 [a]
107-12-0	Propionitrile	500	522	104	50-150 [a]
103-65-1	n-Propylbenzene	50	49.2	98	77-125
100-42-5	Styrene	50	48.9	98	74-120
630-20-6	1,1,1,2-Tetrachloroethane	50	48.2	96	76-118
71-55-6	1,1,1-Trichloroethane	50	51.4	103	70-131
79-34-5	1,1,2,2-Tetrachloroethane	50	50.9	102	76-121
79-00-5	1,1,2-Trichloroethane	50	47.4	95	77-118
87-61-6	1,2,3-Trichlorobenzene	50	48.4	97	76-129
96-18-4	1,2,3-Trichloropropane	50	52.1	104	75-121
120-82-1	1,2,4-Trichlorobenzene	50	49.2	98	73-128

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1574-BS	G0040989.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	50	49.4	99	79-121
108-67-8	1,3,5-Trimethylbenzene	50	49.0	98	78-126
127-18-4	Tetrachloroethylene	50	47.8	96	68-127
108-88-3	Toluene	50	48.0	96	74-118
79-01-6	Trichloroethylene	50	52.2	104	72-122
75-69-4	Trichlorofluoromethane	50	50.9	102	60-147
110-57-6	Trans-1,4-Dichloro-2-Butene	50	51.3	103	68-131
75-01-4	Vinyl chloride	50	47.1	94	64-144
108-05-4	Vinyl Acetate	250	360	144*	47-132
	m,p-Xylene	100	99.1	99	79-122
95-47-6	o-Xylene	50	48.7	97	75-123

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	78-123%
2037-26-5	Toluene-D8	97%	71-137%
460-00-4	4-Bromofluorobenzene	93%	61-157%
17060-07-0	1,2-Dichloroethane-D4	102%	74-125%

(a) Advisory control limits.

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1069-BS	J026069.D	1	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	101	81	44-142
75-05-8	Acetonitrile	250	195	78	50-150 [a]
107-02-8	Acrolein	125	105	84	32-168
107-13-1	Acrylonitrile	125	116	93	35-130
107-05-1	Allyl chloride	25	16.8	67	50-150 [a]
71-43-2	Benzene	25	26.7	107	80-120
100-44-7	Benzyl Chloride	25	23.7	95	50-150 [a]
108-86-1	Bromobenzene	25	26.2	105	76-114
74-97-5	Bromochloromethane	25	23.9	96	75-121
75-27-4	Bromodichloromethane	25	24.0	96	75-120
75-25-2	Bromoform	25	24.3	97	60-129
104-51-8	n-Butylbenzene	25	27.2	109	76-122
135-98-8	sec-Butylbenzene	25	27.7	111	84-122
98-06-6	tert-Butylbenzene	25	27.0	108	77-124
108-90-7	Chlorobenzene	25	25.7	103	82-112
75-00-3	Chloroethane	25	32.4	130	67-148
67-66-3	Chloroform	25	25.7	103	78-118
544-10-5	1-Chlorohexane	25	28.1	112	82-130
95-49-8	o-Chlorotoluene	25	26.1	104	80-121
106-43-4	p-Chlorotoluene	25	26.9	108	78-120
110-75-8	2-Chloroethyl vinyl ether	125	127	102	23-132
75-15-0	Carbon disulfide	25	27.1	108	65-147
56-23-5	Carbon tetrachloride	25	26.6	106	69-137
75-34-3	1,1-Dichloroethane	25	26.1	104	75-117
75-35-4	1,1-Dichloroethylene	25	25.7	103	67-134
563-58-6	1,1-Dichloropropene	25	26.7	107	84-127
96-12-8	1,2-Dibromo-3-chloropropane	25	21.9	88	54-125
106-93-4	1,2-Dibromoethane	25	24.7	99	68-116
107-06-2	1,2-Dichloroethane	25	24.3	97	68-121
78-87-5	1,2-Dichloropropane	25	26.0	104	78-122
142-28-9	1,3-Dichloropropane	25	24.2	97	72-116
594-20-7	2,2-Dichloropropane	25	26.1	104	68-134
124-48-1	Dibromochloromethane	25	24.3	97	68-118
75-71-8	Dichlorodifluoromethane	25	25.0	100	43-173
156-59-2	cis-1,2-Dichloroethylene	25	24.7	99	81-120
10061-01-5	cis-1,3-Dichloropropene	25	25.6	102	73-115

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1069-BS	J026069.D	1	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	25	20.0	80	50-150 [a]
541-73-1	m-Dichlorobenzene	25	26.3	105	78-116
95-50-1	o-Dichlorobenzene	25	26.1	104	77-115
106-46-7	p-Dichlorobenzene	25	25.8	103	77-113
156-60-5	trans-1,2-Dichloroethylene	25	25.7	103	74-125
10061-02-6	trans-1,3-Dichloropropene	25	26.6	106	69-115
100-41-4	Ethylbenzene	25	25.3	101	82-115
97-63-2	Ethyl methacrylate	25	22.4	90	50-150 [a]
76-13-1	Freon 113	25	26.6	106	72-148
591-78-6	2-Hexanone	125	116	93	60-125
87-68-3	Hexachlorobutadiene	25	28.4	114	62-138
110-54-3	Hexane	25	25.7	103	70-148
98-82-8	Isopropylbenzene	25	27.9	112	83-129
99-87-6	p-Isopropyltoluene	25	27.2	109	85-125
108-10-1	4-Methyl-2-pentanone	125	116	93	61-128
126-98-7	Methacrylonitrile	250	205	82	50-150 [a]
74-83-9	Methyl bromide	25	27.0	108	60-165
74-87-3	Methyl chloride	25	35.3	141	58-152
74-88-4	Methyl iodide	25	25.7	103	61-140
80-62-6	Methyl methacrylate	25	20.8	83	71-128
74-95-3	Methylene bromide	25	24.9	100	75-114
75-09-2	Methylene chloride	25	23.0	92	66-125
78-93-3	Methyl ethyl ketone	125	109	87	58-127
1634-04-4	Methyl Tert Butyl Ether	25	23.9	96	67-127
91-20-3	Naphthalene	25	22.7	91	62-129
76-01-7	Pentachloroethane	25	25.2	101	50-150 [a]
107-12-0	Propionitrile	250	230	92	50-150 [a]
103-65-1	n-Propylbenzene	25	27.2	109	80-122
100-42-5	Styrene	25	26.5	106	58-125
630-20-6	1,1,1,2-Tetrachloroethane	25	25.0	100	73-118
71-55-6	1,1,1-Trichloroethane	25	26.5	106	78-132
79-34-5	1,1,2,2-Tetrachloroethane	25	24.6	98	67-119
79-00-5	1,1,2-Trichloroethane	25	24.2	97	74-115
87-61-6	1,2,3-Trichlorobenzene	25	25.0	100	65-125
96-18-4	1,2,3-Trichloropropane	25	25.2	101	68-114
120-82-1	1,2,4-Trichlorobenzene	25	26.0	104	66-122

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1069-BS	J026069.D	1	11/13/06	AB	n/a	n/a	VJ1069

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	25	26.3	105	77-119
108-67-8	1,3,5-Trimethylbenzene	25	27.1	108	81-120
127-18-4	Tetrachloroethylene	25	27.5	110	75-126
108-88-3	Toluene	25	25.7	103	81-114
79-01-6	Trichloroethylene	25	25.4	102	80-115
75-69-4	Trichlorofluoromethane	25	25.4	102	65-163
110-57-6	Trans-1,4-Dichloro-2-Butene	25	21.6	86	38-130
75-01-4	Vinyl chloride	25	28.5	114	70-151
108-05-4	Vinyl Acetate	125	121	97	42-146
	m,p-Xylene	50	52.5	105	83-118
95-47-6	o-Xylene	25	26.1	104	77-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	86-115%
17060-07-0	1,2-Dichloroethane-D4	98%	73-126%
2037-26-5	Toluene-D8	98%	86-112%
460-00-4	4-Bromofluorobenzene	100%	83-119%

(a) Advisory control limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44735-2MS	G0040964.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2MSD	G0040965.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2	G0040962.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		339	209	62	253	73	19	14-140/33
75-05-8	Acetonitrile	ND		677	366	54	424	61	15	50-150/30 [a]
107-02-8	Acrolein	ND		339	706	208*	758	218*	7	20-144/42
107-13-1	Acrylonitrile	ND		339	245	72	280	80	13	22-116/31
107-05-1	Allyl chloride	ND		67.7	58.5	86	61.7	89	5	50-150/30 [a]
71-43-2	Benzene	ND		67.7	68.0	100	74.6	107	9	63-135/23
100-44-7	Benzyl Chloride	ND		67.7	51.5	76	55.9	80	8	50-150/30 [a]
108-86-1	Bromobenzene	ND		67.7	64.4	95	76.2	109	17	56-145/30
74-97-5	Bromochloromethane	ND		67.7	58.5	86	65.5	94	11	64-120/23
75-27-4	Bromodichloromethane	ND		67.7	62.7	93	68.6	99	9	63-126/23
75-25-2	Bromoform	ND		67.7	53.8	79	59.0	85	9	54-109/24
104-51-8	n-Butylbenzene	ND		67.7	72.5	107	83.6	120	14	45-159/32
135-98-8	sec-Butylbenzene	ND		67.7	73.7	109	81.3	117	10	54-164/31
98-06-6	tert-Butylbenzene	ND		67.7	69.9	103	79.2	114	12	60-161/30
108-90-7	Chlorobenzene	ND		67.7	67.8	100	72.7	104	7	64-130/24
75-00-3	Chloroethane	ND		67.7	78.0	115	87.7	126	12	53-172/28
67-66-3	Chloroform	ND		67.7	69.5	103	75.6	109	8	68-131/24
544-10-5	1-Chlorohexane	ND		67.7	72.8	107	77.0	111	6	52-162/26
95-49-8	o-Chlorotoluene	ND		67.7	66.6	98	76.3	110	14	59-162/32
106-43-4	p-Chlorotoluene	ND		67.7	68.4	101	77.1	111	12	59-155/29
110-75-8	2-Chloroethyl vinyl ether	ND		339	276	81	309	89	11	16-159/31
75-15-0	Carbon disulfide	ND		67.7	71.3	105	79.2	114	10	47-165/29
56-23-5	Carbon tetrachloride	ND		67.7	70.9	105	75.1	108	6	64-148/24
75-34-3	1,1-Dichloroethane	ND		67.7	69.6	103	75.4	108	8	64-130/25
75-35-4	1,1-Dichloroethylene	ND		67.7	68.4	101	74.1	106	8	55-149/28
563-58-6	1,1-Dichloropropene	ND		67.7	71.9	106	77.1	111	7	67-148/25
96-12-8	1,2-Dibromo-3-chloropropane	ND		67.7	45.5	67	52.0	75	13	39-105/33
106-93-4	1,2-Dibromoethane	ND		67.7	54.9	81	60.0	86	9	55-107/24
107-06-2	1,2-Dichloroethane	ND		67.7	59.9	88	66.0	95	10	60-114/22
78-87-5	1,2-Dichloropropane	ND		67.7	63.7	94	72.1	104	12	65-128/23
142-28-9	1,3-Dichloropropane	ND		67.7	56.0	83	61.3	88	9	58-114/25
594-20-7	2,2-Dichloropropane	ND		67.7	70.5	104	73.3	105	4	60-144/27
124-48-1	Dibromochloromethane	ND		67.7	57.8	85	61.9	89	7	60-119/23
75-71-8	Dichlorodifluoromethane	ND		67.7	38.7	57	43.4	62	11	41-185/30
156-59-2	cis-1,2-Dichloroethylene	ND		67.7	65.5	97	69.3	100	6	66-132/24
10061-01-5	cis-1,3-Dichloropropene	ND		67.7	64.0	94	70.8	102	10	57-118/25

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44735-2MS	G0040964.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2MSD	G0040965.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2	G0040962.D	1	11/02/06	SH	n/a	n/a	VG1573

5.3 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		67.7	48.3	71	57.2	82	17	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		67.7	69.7	103	77.5	111	11	59-138/28
95-50-1	o-Dichlorobenzene	ND		67.7	66.3	98	75.6	109	13	56-128/27
106-46-7	p-Dichlorobenzene	ND		67.7	69.4	102	79.0	113	13	57-134/26
156-60-5	trans-1,2-Dichloroethylene	ND		67.7	69.0	102	74.4	107	8	63-137/27
10061-02-6	trans-1,3-Dichloropropene	ND		67.7	65.2	96	70.1	101	7	58-115/25
100-41-4	Ethylbenzene	ND		67.7	67.6	100	71.9	103	6	63-142/25
97-63-2	Ethyl methacrylate	ND		67.7	49.7	73	55.7	80	11	50-150/30 [a]
76-13-1	Freon 113	ND		67.7	70.6	104	78.4	113	10	61-169/28
591-78-6	2-Hexanone	ND		339	225	66	253	73	12	35-109/34
87-68-3	Hexachlorobutadiene	ND		67.7	71.7	106	79.0	113	10	17-160/37
110-54-3	Hexane	ND		67.7	67.2	99	73.1	105	8	28-170/32
98-82-8	Isopropylbenzene	ND		67.7	72.3	107	76.8	110	6	59-177/29
99-87-6	p-Isopropyltoluene	ND		67.7	71.1	105	79.5	114	11	53-168/31
108-10-1	4-Methyl-2-pentanone	ND		339	234	69	257	74	9	44-99/32
126-98-7	Methacrylonitrile	ND		677	480	71	551	79	14	50-150/30 [a]
74-83-9	Methyl bromide	ND		67.7	83.0	123	86.1	124	4	38-188/27
74-87-3	Methyl chloride	ND		67.7	70.0	103	76.9	110	9	57-160/29
74-88-4	Methyl iodide	ND		67.7	64.1	95	72.1	104	12	52-150/30
80-62-6	Methyl methacrylate	ND		67.7	47.8	71	55.0	79	14	56-106/27
74-95-3	Methylene bromide	ND		67.7	58.5	86	64.2	92	9	56-109/24
75-09-2	Methylene chloride	10.4	J	67.7	73.6	93	80.6	101	9	40-183/34
78-93-3	Methyl ethyl ketone	ND		339	212	63	249	72	16	27-112/32
1634-04-4	Methyl Tert Butyl Ether	ND		67.7	54.9	81	61.9	89	12	53-122/28
91-20-3	Naphthalene	ND		67.7	52.7	78	61.4	88	15	20-116/35
76-01-7	Pentachloroethane	ND		67.7	63.1	93	70.3	101	11	50-150/30 [a]
107-12-0	Propionitrile	ND		677	461	68	522	75	12	50-150/30 [a]
103-65-1	n-Propylbenzene	ND		67.7	69.8	103	80.7	116	14	59-163/31
100-42-5	Styrene	ND		67.7	64.9	96	69.4	100	7	54-130/26
630-20-6	1,1,1,2-Tetrachloroethane	ND		67.7	64.7	96	70.0	101	8	64-131/24
71-55-6	1,1,1-Trichloroethane	ND		67.7	72.2	107	77.2	111	7	70-149/25
79-34-5	1,1,2,2-Tetrachloroethane	ND		67.7	53.0	78	63.1	91	17	45-121/33
79-00-5	1,1,2-Trichloroethane	ND		67.7	55.9	83	60.9	87	9	60-114/25
87-61-6	1,2,3-Trichlorobenzene	ND		67.7	63.4	94	71.4	103	12	24-135/31
96-18-4	1,2,3-Trichloropropane	ND		67.7	53.9	80	62.0	89	14	39-125/32
120-82-1	1,2,4-Trichlorobenzene	ND		67.7	66.7	98	74.9	108	12	23-142/31

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44735-2MS	G0040964.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2MSD	G0040965.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2	G0040962.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-1, F44814-5

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	ND		67.7	69.6	103	78.2	112	12	50-161/32
108-67-8	1,3,5-Trimethylbenzene	ND		67.7	70.4	104	79.7	114	12	57-164/31
127-18-4	Tetrachloroethylene	ND		67.7	72.6	107	78.6	113	8	54-154/27
108-88-3	Toluene	ND		67.7	68.0	100	73.2	105	7	62-142/29
79-01-6	Trichloroethylene	ND		67.7	69.6	103	76.2	109	9	59-143/25
75-69-4	Trichlorofluoromethane	ND		67.7	68.0	100	76.2	109	11	59-171/28
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		67.7	52.6	78	62.1	89	17	41-114/31
75-01-4	Vinyl chloride	ND		67.7	55.0	81	62.3	90	12	64-165/27
108-05-4	Vinyl Acetate	ND		339	331	98	361	104	9	13-113/42
	m,p-Xylene	ND		135	140	103	149	107	6	61-146/25
95-47-6	o-Xylene	ND		67.7	67.4	99	72.3	104	7	60-141/25

CAS No.	Surrogate Recoveries	MS	MSD	F44735-2	Limits
1868-53-7	Dibromofluoromethane	101%	99%	99%	78-123%
2037-26-5	Toluene-D8	99%	97%	93%	71-137%
460-00-4	4-Bromofluorobenzene	94%	98%	95%	61-157%
17060-07-0	1,2-Dichloroethane-D4	95%	89%	95%	74-125%

(a) Advisory control limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44814-2MS	G0040992.D	1	11/03/06	SH	n/a	n/a	VG1574
F44814-2MSD	G0040993.D	1	11/03/06	SH	n/a	n/a	VG1574
F44814-2	G0040991.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		263	148	56	166	65	11	14-140/33
75-05-8	Acetonitrile	ND		525	281	54	289	56	3	50-150/30 [a]
107-02-8	Acrolein	ND		263	626	238*	611	239*	2	20-144/42
107-13-1	Acrylonitrile	ND		263	178	68	186	73	4	22-116/31
107-05-1	Allyl chloride	ND		52.5	46.5	89	46.4	91	0	50-150/30 [a]
71-43-2	Benzene	ND		52.5	54.3	103	53.6	105	1	63-135/23
100-44-7	Benzyl Chloride	ND		52.5	38.8	74	38.4	75	1	50-150/30 [a]
108-86-1	Bromobenzene	ND		52.5	54.0	103	51.7	101	4	56-145/30
74-97-5	Bromochloromethane	ND		52.5	45.6	87	46.3	90	2	64-120/23
75-27-4	Bromodichloromethane	ND		52.5	48.9	93	47.6	93	3	63-126/23
75-25-2	Bromoform	ND		52.5	41.0	78	41.2	81	0	54-109/24
104-51-8	n-Butylbenzene	ND		52.5	59.6	114	58.1	114	3	45-159/32
135-98-8	sec-Butylbenzene	ND		52.5	60.0	114	57.8	113	4	54-164/31
98-06-6	tert-Butylbenzene	ND		52.5	56.7	108	56.1	110	1	60-161/30
108-90-7	Chlorobenzene	ND		52.5	56.5	108	53.9	105	5	64-130/24
75-00-3	Chloroethane	ND		52.5	66.3	126	65.1	127	2	53-172/28
67-66-3	Chloroform	ND		52.5	54.8	104	54.5	106	1	68-131/24
544-10-5	1-Chlorohexane	ND		52.5	59.3	113	60.0	117	1	52-162/26
95-49-8	o-Chlorotoluene	ND		52.5	55.2	105	53.1	104	4	59-162/32
106-43-4	p-Chlorotoluene	ND		52.5	56.8	108	54.6	107	4	59-155/29
110-75-8	2-Chloroethyl vinyl ether	ND		263	199	76	207	81	4	16-159/31
75-15-0	Carbon disulfide	ND		52.5	58.1	111	57.5	112	1	47-165/29
56-23-5	Carbon tetrachloride	ND		52.5	56.7	108	56.2	110	1	64-148/24
75-34-3	1,1-Dichloroethane	ND		52.5	53.9	103	54.0	106	0	64-130/25
75-35-4	1,1-Dichloroethylene	ND		52.5	55.4	106	53.1	104	4	55-149/28
563-58-6	1,1-Dichloropropene	ND		52.5	56.2	107	56.8	111	1	67-148/25
96-12-8	1,2-Dibromo-3-chloropropane	ND		52.5	32.4	62	34.9	68	7	39-105/33
106-93-4	1,2-Dibromoethane	ND		52.5	42.6	81	43.1	84	1	55-107/24
107-06-2	1,2-Dichloroethane	ND		52.5	44.7	85	45.8	89	2	60-114/22
78-87-5	1,2-Dichloropropane	ND		52.5	50.9	97	49.9	98	2	65-128/23
142-28-9	1,3-Dichloropropane	ND		52.5	43.6	83	43.6	85	0	58-114/25
594-20-7	2,2-Dichloropropane	ND		52.5	56.9	108	56.9	111	0	60-144/27
124-48-1	Dibromochloromethane	ND		52.5	45.7	87	45.0	88	2	60-119/23
75-71-8	Dichlorodifluoromethane	ND		52.5	45.6	87	45.5	89	0	41-185/30
156-59-2	cis-1,2-Dichloroethylene	ND		52.5	50.5	96	50.0	98	1	66-132/24
10061-01-5	cis-1,3-Dichloropropene	ND		52.5	49.6	94	49.3	96	1	57-118/25

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44814-2MS	G0040992.D	1	11/03/06	SH	n/a	n/a	VG1574
F44814-2MSD	G0040993.D	1	11/03/06	SH	n/a	n/a	VG1574
F44814-2	G0040991.D	1	11/03/06	SH	n/a	n/a	VG1574

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		52.5	37.4	71	37.8	74	1	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		52.5	56.0	107	54.7	107	2	59-138/28
95-50-1	o-Dichlorobenzene	ND		52.5	53.4	102	52.3	102	2	56-128/27
106-46-7	p-Dichlorobenzene	ND		52.5	57.1	109	55.5	108	3	57-134/26
156-60-5	trans-1,2-Dichloroethylene	ND		52.5	54.1	103	53.9	105	0	63-137/27
10061-02-6	trans-1,3-Dichloropropene	ND		52.5	50.9	97	50.0	98	2	58-115/25
100-41-4	Ethylbenzene	ND		52.5	55.5	106	54.1	106	3	63-142/25
97-63-2	Ethyl methacrylate	ND		52.5	37.9	72	38.4	75	1	50-150/30 [a]
76-13-1	Freon 113	ND		52.5	56.7	108	56.1	110	1	61-169/28
591-78-6	2-Hexanone	ND		263	153	58	164	64	7	35-109/34
87-68-3	Hexachlorobutadiene	ND		52.5	52.9	101	51.8	101	2	17-160/37
110-54-3	Hexane	ND		52.5	51.5	98	51.9	101	1	28-170/32
98-82-8	Isopropylbenzene	ND		52.5	59.8	114	59.6	116	0	59-177/29
99-87-6	p-Isopropyltoluene	ND		52.5	59.4	113	56.7	111	5	53-168/31
108-10-1	4-Methyl-2-pentanone	ND		263	162	62	169	66	4	44-99/32
126-98-7	Methacrylonitrile	ND		525	341	65	358	70	5	50-150/30 [a]
74-83-9	Methyl bromide	ND		52.5	77.4	147	68.9	135	12	38-188/27
74-87-3	Methyl chloride	ND		52.5	69.6	133	67.7	132	3	57-160/29
74-88-4	Methyl iodide	ND		52.5	52.1	99	51.6	101	1	52-150/30
80-62-6	Methyl methacrylate	ND		52.5	32.9	63	35.3	69	7	56-106/27
74-95-3	Methylene bromide	ND		52.5	43.9	84	44.2	86	1	56-109/24
75-09-2	Methylene chloride	ND		52.5	51.6	98	52.5	103	2	40-183/34
78-93-3	Methyl ethyl ketone	ND		263	143	54	152	59	6	27-112/32
1634-04-4	Methyl Tert Butyl Ether	ND		52.5	40.2	77	41.6	81	3	53-122/28
91-20-3	Naphthalene	ND		52.5	40.5	77	41.2	81	2	20-116/35
76-01-7	Pentachloroethane	ND		52.5	55.2	105	51.2	100	8	50-150/30 [a]
107-12-0	Propionitrile	ND		525	316	60	343	67	8	50-150/30 [a]
103-65-1	n-Propylbenzene	ND		52.5	58.5	111	56.4	110	4	59-163/31
100-42-5	Styrene	ND		52.5	54.0	103	52.2	102	3	54-130/26
630-20-6	1,1,1,2-Tetrachloroethane	ND		52.5	52.5	100	52.9	103	1	64-131/24
71-55-6	1,1,1-Trichloroethane	ND		52.5	56.8	108	56.1	110	1	70-149/25
79-34-5	1,1,2,2-Tetrachloroethane	ND		52.5	39.8	76	40.6	79	2	45-121/33
79-00-5	1,1,2-Trichloroethane	ND		52.5	43.7	83	43.8	86	0	60-114/25
87-61-6	1,2,3-Trichlorobenzene	ND		52.5	49.7	95	48.5	95	2	24-135/31
96-18-4	1,2,3-Trichloropropane	ND		52.5	39.3	75	39.6	77	1	39-125/32
120-82-1	1,2,4-Trichlorobenzene	ND		52.5	52.8	101	52.4	102	1	23-142/31

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44814-2MS	G0040992.D	1	11/03/06	SH	n/a	n/a	VG1574
F44814-2MSD	G0040993.D	1	11/03/06	SH	n/a	n/a	VG1574
F44814-2	G0040991.D	1	11/03/06	SH	n/a	n/a	VG1574

5.3 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-2

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	ND		52.5	58.4	111	55.5	108	5	50-161/32
108-67-8	1,3,5-Trimethylbenzene	ND		52.5	58.2	111	56.3	110	3	57-164/31
127-18-4	Tetrachloroethylene	ND		52.5	57.0	109	57.7	113	1	54-154/27
108-88-3	Toluene	ND		52.5	56.6	108	55.3	108	2	62-142/29
79-01-6	Trichloroethylene	ND		52.5	57.4	109	55.3	108	4	59-143/25
75-69-4	Trichlorofluoromethane	ND		52.5	58.0	110	56.1	110	3	59-171/28
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		52.5	37.5	71	38.6	75	3	41-114/31
75-01-4	Vinyl chloride	ND		52.5	52.3	100	51.2	100	2	64-165/27
108-05-4	Vinyl Acetate	ND		263	260	99	260	102	0	13-113/42
	m,p-Xylene	ND		105	115	110	112	109	3	61-146/25
95-47-6	o-Xylene	ND		52.5	54.9	105	54.9	107	0	60-141/25

CAS No.	Surrogate Recoveries	MS	MSD	F44814-2	Limits
1868-53-7	Dibromofluoromethane	96%	97%	102%	78-123%
2037-26-5	Toluene-D8	101%	101%	92%	71-137%
460-00-4	4-Bromofluorobenzene	93%	93%	92%	61-157%
17060-07-0	1,2-Dichloroethane-D4	88%	83%	95%	74-125%

(a) Advisory control limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44907-1MS	J026072.D	50	11/13/06	AB	n/a	n/a	VJ1069
F44907-1MSD	J026073.D	50	11/13/06	AB	n/a	n/a	VJ1069
F44907-1	J026071.D	50	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	F44907-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		6250	4700	75	5000	80	6	45-127/15
75-05-8	Acetonitrile	ND		12500	9660	77	10400	83	7	50-150/30 [a]
107-02-8	Acrolein	ND		6250	5670	91	5460	87	4	26-185/18
107-13-1	Acrylonitrile	ND		6250	5270	84	5670	91	7	39-140/12
107-05-1	Allyl chloride	ND		1250	812	65	790	63	3	50-150/30 [a]
71-43-2	Benzene	1620		1250	2940	106	2900	102	1	72-125/7
100-44-7	Benzyl Chloride	ND		1250	1180	94	1190	95	1	50-150/30 [a]
108-86-1	Bromobenzene	ND		1250	1230	98	1250	100	2	72-113/10
74-97-5	Bromochloromethane	ND		1250	1180	94	1170	94	1	73-121/9
75-27-4	Bromodichloromethane	ND		1250	1210	97	1210	97	0	72-120/8
75-25-2	Bromoform	ND		1250	1210	97	1250	100	3	55-127/11
104-51-8	n-Butylbenzene	43.2	J	1250	1450	113	1410	109	3	69-122/10
135-98-8	sec-Butylbenzene	ND		1250	1420	114	1380	110	3	75-125/9
98-06-6	tert-Butylbenzene	ND		1250	1350	108	1330	106	1	70-125/12
108-90-7	Chlorobenzene	ND		1250	1320	106	1300	104	2	79-113/7
75-00-3	Chloroethane	ND		1250	1560	125	1560	125	0	56-164/14
67-66-3	Chloroform	ND		1250	1300	104	1280	102	2	75-120/8
544-10-5	1-Chlorohexane	ND		1250	1460	117	1470	118	1	77-127/9
95-49-8	o-Chlorotoluene	ND		1250	1290	103	1260	101	2	76-122/9
106-43-4	p-Chlorotoluene	ND		1250	1510	121*	1470	118	3	73-120/9
110-75-8	2-Chloroethyl vinyl ether	ND		6250	5920	95	6060	97	2	8-137/18
75-15-0	Carbon disulfide	ND		1250	1340	107	1290	103	4	60-151/12
56-23-5	Carbon tetrachloride	ND		1250	1340	107	1320	106	2	56-145/12
75-34-3	1,1-Dichloroethane	ND		1250	1320	106	1290	103	2	70-122/10
75-35-4	1,1-Dichloroethylene	ND		1250	1290	103	1260	101	2	61-137/15
563-58-6	1,1-Dichloropropene	ND		1250	1330	106	1310	105	2	80-126/9
96-12-8	1,2-Dibromo-3-chloropropane	ND		1250	1120	90	1180	94	5	49-127/18
106-93-4	1,2-Dibromoethane	ND		1250	1280	102	1290	103	1	67-113/10
107-06-2	1,2-Dichloroethane	ND		1250	1240	99	1230	98	1	64-124/7
78-87-5	1,2-Dichloropropane	ND		1250	1300	104	1300	104	0	74-123/8
142-28-9	1,3-Dichloropropane	ND		1250	1290	103	1290	103	0	70-116/8
594-20-7	2,2-Dichloropropane	ND		1250	1310	105	1280	102	2	64-133/13
124-48-1	Dibromochloromethane	ND		1250	1250	100	1270	102	2	63-119/9
75-71-8	Dichlorodifluoromethane	ND		1250	1270	102	1260	101	1	35-184/21
156-59-2	cis-1,2-Dichloroethylene	ND		1250	1220	98	1220	98	0	74-125/9
10061-01-5	cis-1,3-Dichloropropene	ND		1250	1280	102	1280	102	0	65-112/10

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44907-1MS	J026072.D	50	11/13/06	AB	n/a	n/a	VJ1069
F44907-1MSD	J026073.D	50	11/13/06	AB	n/a	n/a	VJ1069
F44907-1	J026071.D	50	11/13/06	AB	n/a	n/a	VJ1069

The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	F44907-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		1250	1030	82	1040	83	1	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		1250	1350	108	1330	106	1	74-114/7
95-50-1	o-Dichlorobenzene	ND		1250	1300	104	1300	104	0	73-114/8
106-46-7	p-Dichlorobenzene	ND		1250	1280	102	1290	103	1	74-112/7
156-60-5	trans-1,2-Dichloroethylene	ND		1250	1290	103	1270	102	2	70-127/11
10061-02-6	trans-1,3-Dichloropropene	ND		1250	1410	113	1380	110	2	59-116/11
100-41-4	Ethylbenzene	1890		1250	3150	101	3070	94	3	73-119/8
97-63-2	Ethyl methacrylate	ND		1250	1170	94	1220	98	4	50-150/30 [a]
76-13-1	Freon 113	ND		1250	1330	106	1300	104	2	67-151/14
591-78-6	2-Hexanone	ND		6250	5970	96	6320	101	6	54-131/11
87-68-3	Hexachlorobutadiene	ND		1250	1400	112	1380	110	1	52-133/13
110-54-3	Hexane	ND		1250	1590	127	1580	126	1	62-153/12
98-82-8	Isopropylbenzene	138		1250	1590	116	1560	114	2	79-127/8
99-87-6	p-Isopropyltoluene	ND		1250	1400	112	1370	110	2	77-126/8
108-10-1	4-Methyl-2-pentanone	ND		6250	6080	97	6340	101	4	57-136/11
126-98-7	Methacrylonitrile	ND		12500	10100	81	10500	84	4	50-150/30 [a]
74-83-9	Methyl bromide	ND		1250	1280	102	1270	102	1	52-172/16
74-87-3	Methyl chloride	ND		1250	1760	141	1690	135	4	53-155/19
74-88-4	Methyl iodide	ND		1250	1250	100	1240	99	1	52-141/12
80-62-6	Methyl methacrylate	ND		1250	1030	82	1070	86	4	76-115/11
74-95-3	Methylene bromide	ND		1250	1240	99	1270	102	2	73-115/9
75-09-2	Methylene chloride	ND		1250	1180	94	1150	92	3	61-129/11
78-93-3	Methyl ethyl ketone	ND		6250	5340	85	5720	92	7	51-128/10
1634-04-4	Methyl Tert Butyl Ether	1890		1250	2910	82	3000	89	3	61-129/9
91-20-3	Naphthalene	789		1250	2010	98	2100	105	4	52-127/13
76-01-7	Pentachloroethane	ND		1250	1200	96	1200	96	0	50-150/30 [a]
107-12-0	Propionitrile	ND		12500	11000	88	11800	94	7	50-150/30 [a]
103-65-1	n-Propylbenzene	398		1250	1710	105	1680	103	2	73-123/10
100-42-5	Styrene	ND		1250	1380	110	1370	110	1	64-124/11
630-20-6	1,1,1,2-Tetrachloroethane	ND		1250	1320	106	1300	104	2	69-118/8
71-55-6	1,1,1-Trichloroethane	ND		1250	1330	106	1300	104	2	72-133/8
79-34-5	1,1,2,2-Tetrachloroethane	ND		1250	1100	88	1150	92	4	64-120/10
79-00-5	1,1,2-Trichloroethane	ND		1250	1250	100	1270	102	2	72-116/9
87-61-6	1,2,3-Trichlorobenzene	ND		1250	1270	102	1300	104	2	58-121/12
96-18-4	1,2,3-Trichloropropane	ND		1250	1180	94	1260	101	7	63-116/13
120-82-1	1,2,4-Trichlorobenzene	ND		1250	1350	108	1360	109	1	58-120/11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44907-1MS	J026072.D	50	11/13/06	AB	n/a	n/a	VJ1069
F44907-1MSD	J026073.D	50	11/13/06	AB	n/a	n/a	VJ1069
F44907-1	J026071.D	50	11/13/06	AB	n/a	n/a	VJ1069

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The QC reported here applies to the following samples: Method: SW846 8260B

F44814-3, F44814-4

CAS No.	Compound	F44907-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	3870		1250	4730	69	4680	65* b	1	68-122/10
108-67-8	1,3,5-Trimethylbenzene	1070		1250	2290	98	2270	96	1	70-125/9
127-18-4	Tetrachloroethylene	ND		1250	1420	114	1410	113	1	70-126/9
108-88-3	Toluene	1770		1250	3090	106	3020	100	2	67-123/8
79-01-6	Trichloroethylene	ND		1250	1300	104	1300	104	0	73-117/10
75-69-4	Trichlorofluoromethane	ND		1250	1290	103	1280	102	1	52-164/16
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		1250	993	79	995	80	0	27-131/22
75-01-4	Vinyl chloride	ND		1250	1320	106	1270	102	4	63-161/18
108-05-4	Vinyl Acetate	ND		6250	5700	91	5800	93	2	37-154/10
	m,p-Xylene	6930		2500	9340	96	9130	88	2	74-123/7
95-47-6	o-Xylene	3330		1250	4640	105	4570	99	2	68-123/7

CAS No.	Surrogate Recoveries	MS	MSD	F44907-1	Limits
1868-53-7	Dibromofluoromethane	99%	100%	103%	86-115%
17060-07-0	1,2-Dichloroethane-D4	99%	100%	100%	73-126%
2037-26-5	Toluene-D8	103%	102%	97%	86-112%
460-00-4	4-Bromofluorobenzene	99%	99%	100%	83-119%

(a) Advisory control limits.
(b) Outside control limits due to high level in sample relative to spike amount.

GC/MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-MB	L034494.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-MB	L034494.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	29%	19-90%
4165-62-2	Phenol-d5	18%	10-68%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-MB	L034494.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	58%	36-137%
4165-60-0	Nitrobenzene-d5	55%	49-119%
321-60-8	2-Fluorobiphenyl	52%	45-118%
1718-51-0	Terphenyl-d14	77%	46-135%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MB	L034656.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	830	330	ug/kg	
95-57-8	2-Chlorophenol	ND	170	33	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	170	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	170	33	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	830	330	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	330	67	ug/kg	
95-48-7	2-Methylphenol	ND	170	33	ug/kg	
	3&4-Methylphenol	ND	170	33	ug/kg	
88-75-5	2-Nitrophenol	ND	170	33	ug/kg	
100-02-7	4-Nitrophenol	ND	830	330	ug/kg	
87-86-5	Pentachlorophenol	ND	830	330	ug/kg	
108-95-2	Phenol	ND	170	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	33	ug/kg	
83-32-9	Acenaphthene	ND	170	33	ug/kg	
208-96-8	Acenaphthylene	ND	170	33	ug/kg	
120-12-7	Anthracene	ND	170	33	ug/kg	
92-87-5	Benzidine	ND	1700	830	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	33	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	33	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	67	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	33	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	330	83	ug/kg	
100-51-6	Benzyl Alcohol	ND	170	33	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	33	ug/kg	
106-47-8	4-Chloroaniline	ND	330	130	ug/kg	
218-01-9	Chrysene	ND	170	33	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	33	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	67	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	170	33	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	33	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	33	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	33	ug/kg	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MB	L034656.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	170	33	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	170	67	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	170	67	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	330	170	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	67	ug/kg	
132-64-9	Dibenzofuran	ND	170	33	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	330	83	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	330	170	ug/kg	
84-66-2	Diethyl phthalate	ND	330	83	ug/kg	
131-11-3	Dimethyl phthalate	ND	330	83	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	330	170	ug/kg	
206-44-0	Fluoranthene	ND	170	33	ug/kg	
86-73-7	Fluorene	ND	170	33	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	33	ug/kg	
87-68-3	Hexachlorobutadiene	ND	170	67	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	170	67	ug/kg	
67-72-1	Hexachloroethane	ND	170	67	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	67	ug/kg	
78-59-1	Isophorone	ND	170	33	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	33	ug/kg	
88-74-4	2-Nitroaniline	ND	330	83	ug/kg	
99-09-2	3-Nitroaniline	ND	330	83	ug/kg	
100-01-6	4-Nitroaniline	ND	330	120	ug/kg	
91-20-3	Naphthalene	ND	170	33	ug/kg	
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	67	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	33	ug/kg	
85-01-8	Phenanthrene	ND	170	33	ug/kg	
129-00-0	Pyrene	ND	170	67	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	170	33	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	76%	45-114%
4165-62-2	Phenol-d5	79%	44-124%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MB	L034656.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	77%	50-128%
4165-60-0	Nitrobenzene-d5	73%	41-123%
321-60-8	2-Fluorobiphenyl	72%	46-122%
1718-51-0	Terphenyl-d14	82%	45-135%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MB	L034721.D	1	11/09/06	NJ	11/07/06	OP18426	SL1783

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	830	330	ug/kg	
95-57-8	2-Chlorophenol	ND	170	33	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	170	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	170	33	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	830	330	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	330	67	ug/kg	
95-48-7	2-Methylphenol	ND	170	33	ug/kg	
	3&4-Methylphenol	ND	170	33	ug/kg	
88-75-5	2-Nitrophenol	ND	170	33	ug/kg	
100-02-7	4-Nitrophenol	ND	830	330	ug/kg	
87-86-5	Pentachlorophenol	ND	830	330	ug/kg	
108-95-2	Phenol	ND	170	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	33	ug/kg	
83-32-9	Acenaphthene	ND	170	33	ug/kg	
208-96-8	Acenaphthylene	ND	170	33	ug/kg	
120-12-7	Anthracene	ND	170	33	ug/kg	
92-87-5	Benzidine	ND	1700	830	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	33	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	33	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	67	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	33	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	330	83	ug/kg	
100-51-6	Benzyl Alcohol	ND	170	33	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	33	ug/kg	
106-47-8	4-Chloroaniline	ND	330	130	ug/kg	
218-01-9	Chrysene	ND	170	33	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	33	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	67	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	170	33	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	33	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	33	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	33	ug/kg	

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MB	L034721.D	1	11/09/06	NJ	11/07/06	OP18426	SL1783

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	170	33	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	170	67	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	170	67	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	330	170	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	67	ug/kg	
132-64-9	Dibenzofuran	ND	170	33	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	330	83	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	330	170	ug/kg	
84-66-2	Diethyl phthalate	ND	330	83	ug/kg	
131-11-3	Dimethyl phthalate	ND	330	83	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	330	170	ug/kg	
206-44-0	Fluoranthene	ND	170	33	ug/kg	
86-73-7	Fluorene	ND	170	33	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	33	ug/kg	
87-68-3	Hexachlorobutadiene	ND	170	67	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	170	67	ug/kg	
67-72-1	Hexachloroethane	ND	170	67	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	67	ug/kg	
78-59-1	Isophorone	ND	170	33	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	33	ug/kg	
88-74-4	2-Nitroaniline	ND	330	83	ug/kg	
99-09-2	3-Nitroaniline	ND	330	83	ug/kg	
100-01-6	4-Nitroaniline	ND	330	120	ug/kg	
91-20-3	Naphthalene	ND	170	33	ug/kg	
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	67	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	33	ug/kg	
85-01-8	Phenanthrene	ND	170	33	ug/kg	
129-00-0	Pyrene	ND	170	67	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	170	33	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	76%	45-114%
4165-62-2	Phenol-d5	77%	44-124%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MB	L034721.D	1	11/09/06	NJ	11/07/06	OP18426	SL1783

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	79%	50-128%
4165-60-0	Nitrobenzene-d5	74%	41-123%
321-60-8	2-Fluorobiphenyl	73%	46-122%
1718-51-0	Terphenyl-d14	84%	45-135%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-BS	L034493.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	100	32.7	33	10-50
95-57-8	2-Chlorophenol	50	35.1	70	57-100
59-50-7	4-Chloro-3-methyl phenol	50	37.7	75	63-105
120-83-2	2,4-Dichlorophenol	50	36.2	72	65-106
105-67-9	2,4-Dimethylphenol	50	30.4	61	49-90
51-28-5	2,4-Dinitrophenol	100	77.5	78	26-125
534-52-1	4,6-Dinitro-o-cresol	100	90.2	90	56-121
95-48-7	2-Methylphenol	50	29.2	58	48-90
	3&4-Methylphenol	100	57.1	57	43-94
88-75-5	2-Nitrophenol	50	36.9	74	62-107
100-02-7	4-Nitrophenol	100	36.4	36	19-66
87-86-5	Pentachlorophenol	100	92.4	92	62-120
108-95-2	Phenol	50	13.7	27	20-65
95-95-4	2,4,5-Trichlorophenol	50	38.8	78	67-103
88-06-2	2,4,6-Trichlorophenol	50	39.1	78	68-104
83-32-9	Acenaphthene	50	38.4	77	67-101
208-96-8	Acenaphthylene	50	38.6	77	65-100
120-12-7	Anthracene	50	41.3	83	71-103
92-87-5	Benzidine	50	31.3	63	21-101
56-55-3	Benzo(a)anthracene	50	41.1	82	71-105
50-32-8	Benzo(a)pyrene	50	41.0	82	67-106
205-99-2	Benzo(b)fluoranthene	50	41.9	84	68-108
191-24-2	Benzo(g,h,i)perylene	50	39.6	79	65-110
207-08-9	Benzo(k)fluoranthene	50	42.3	85	69-110
101-55-3	4-Bromophenyl phenyl ether	50	40.4	81	71-106
85-68-7	Butyl benzyl phthalate	50	41.4	83	66-110
100-51-6	Benzyl Alcohol	50	24.6	49	36-101
91-58-7	2-Chloronaphthalene	50	38.7	77	62-99
106-47-8	4-Chloroaniline	50	37.0	74	58-101
218-01-9	Chrysene	50	41.3	83	71-105
111-91-1	bis(2-Chloroethoxy)methane	50	33.9	68	56-101
111-44-4	bis(2-Chloroethyl)ether	50	37.7	75	60-108
108-60-1	bis(2-Chloroisopropyl)ether	50	34.9	70	49-108
7005-72-3	4-Chlorophenyl phenyl ether	50	40.8	82	69-106
95-50-1	1,2-Dichlorobenzene	50	32.9	66	48-98
541-73-1	1,3-Dichlorobenzene	50	31.4	63	44-95

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-BS	L034493.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-46-7	1,4-Dichlorobenzene	50	31.8	64	46-96
121-14-2	2,4-Dinitrotoluene	50	41.4	83	64-107
606-20-2	2,6-Dinitrotoluene	50	39.3	79	64-102
91-94-1	3,3'-Dichlorobenzidine	50	38.7	77	54-109
53-70-3	Dibenzo(a,h)anthracene	50	40.2	80	61-112
132-64-9	Dibenzofuran	50	40.5	81	70-102
84-74-2	Di-n-butyl phthalate	50	42.6	85	69-109
117-84-0	Di-n-octyl phthalate	50	45.4	91	63-125
84-66-2	Diethyl phthalate	50	41.6	83	66-111
131-11-3	Dimethyl phthalate	50	41.3	83	66-109
117-81-7	bis(2-Ethylhexyl)phthalate	50	41.3	83	66-114
206-44-0	Fluoranthene	50	44.1	88	71-108
86-73-7	Fluorene	50	40.9	82	68-102
118-74-1	Hexachlorobenzene	50	38.4	77	69-103
87-68-3	Hexachlorobutadiene	50	33.2	66	48-100
77-47-4	Hexachlorocyclopentadiene	50	30.9	62	20-85
67-72-1	Hexachloroethane	50	30.9	62	41-98
193-39-5	Indeno(1,2,3-cd)pyrene	50	40.6	81	66-112
78-59-1	Isophorone	50	39.6	79	62-105
91-57-6	2-Methylnaphthalene	50	39.4	79	62-105
88-74-4	2-Nitroaniline	50	41.9	84	66-105
99-09-2	3-Nitroaniline	50	40.8	82	56-104
100-01-6	4-Nitroaniline	50	43.7	87	62-110
91-20-3	Naphthalene	50	35.0	70	56-99
98-95-3	Nitrobenzene	50	34.8	70	60-102
621-64-7	N-Nitroso-di-n-propylamine	50	35.8	72	56-101
86-30-6	N-Nitrosodiphenylamine	50	38.7	77	69-106
85-01-8	Phenanthrene	50	41.6	83	71-104
129-00-0	Pyrene	50	40.4	81	67-108
120-82-1	1,2,4-Trichlorobenzene	50	34.3	69	52-99

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	43%	19-90%
4165-62-2	Phenol-d5	26%	10-68%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-BS	L034493.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Surrogate Recoveries	BSP	Limits
118-79-6	2,4,6-Tribromophenol	77%	36-137%
4165-60-0	Nitrobenzene-d5	69%	49-119%
321-60-8	2-Fluorobiphenyl	71%	45-118%
1718-51-0	Terphenyl-d14	79%	46-135%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-BS	L034655.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic acid	3330	2500	75	48-121
95-57-8	2-Chlorophenol	1670	1180	71	61-101
59-50-7	4-Chloro-3-methyl phenol	1670	1180	71	63-107
120-83-2	2,4-Dichlorophenol	1670	1210	73	65-106
105-67-9	2,4-Dimethylphenol	1670	1020	61	53-96
51-28-5	2,4-Dinitrophenol	3330	1980	59	42-122
534-52-1	4,6-Dinitro-o-cresol	3330	2590	78	60-122
95-48-7	2-Methylphenol	1670	1120	67	58-98
	3&4-Methylphenol	3330	2310	69	58-99
88-75-5	2-Nitrophenol	1670	1170	70	59-103
100-02-7	4-Nitrophenol	3330	2310	69	66-111
87-86-5	Pentachlorophenol	3330	2200	66	58-120
108-95-2	Phenol	1670	1310	79	59-104
95-95-4	2,4,5-Trichlorophenol	1670	1230	74	65-105
88-06-2	2,4,6-Trichlorophenol	1670	1200	72	66-106
83-32-9	Acenaphthene	1670	1170	70	63-100
208-96-8	Acenaphthylene	1670	1170	70	62-100
120-12-7	Anthracene	1670	1240	74	67-104
56-55-3	Benzo(a)anthracene	1670	1250	75	66-107
50-32-8	Benzo(a)pyrene	1670	1240	74	63-106
205-99-2	Benzo(b)fluoranthene	1670	1250	75	65-110
191-24-2	Benzo(g,h,i)perylene	1670	1220	73	60-107
207-08-9	Benzo(k)fluoranthene	1670	1260	76	66-111
101-55-3	4-Bromophenyl phenyl ether	1670	1210	73	66-108
85-68-7	Butyl benzyl phthalate	1670	1250	75	62-112
100-51-6	Benzyl Alcohol	1670	1120	67	60-103
91-58-7	2-Chloronaphthalene	1670	1150	69	62-98
106-47-8	4-Chloroaniline	1670	785	47	20-87
218-01-9	Chrysene	1670	1270	76	66-107
111-91-1	bis(2-Chloroethoxy)methane	1670	1070	64	54-98
111-44-4	bis(2-Chloroethyl)ether	1670	1130	68	57-103
108-60-1	bis(2-Chloroisopropyl)ether	1670	1080	65	48-102
7005-72-3	4-Chlorophenyl phenyl ether	1670	1160	70	65-106
95-50-1	1,2-Dichlorobenzene	1670	1100	66	50-97
541-73-1	1,3-Dichlorobenzene	1670	1060	64	46-94
106-46-7	1,4-Dichlorobenzene	1670	1050	63	47-95

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-BS	L034655.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
121-14-2	2,4-Dinitrotoluene	1670	1190	71	60-107
606-20-2	2,6-Dinitrotoluene	1670	1140	68	59-103
91-94-1	3,3'-Dichlorobenzidine	1670	840	50	32-91
53-70-3	Dibenzo(a,h)anthracene	1670	1180	71	59-108
132-64-9	Dibenzofuran	1670	1150	69	64-103
84-74-2	Di-n-butyl phthalate	1670	1180	71	64-109
117-84-0	Di-n-octyl phthalate	1670	1300	78	64-123
84-66-2	Diethyl phthalate	1670	1220	73	61-112
131-11-3	Dimethyl phthalate	1670	1180	71	63-107
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1240	74	62-114
206-44-0	Fluoranthene	1670	1230	74	64-110
86-73-7	Fluorene	1670	1200	72	63-102
118-74-1	Hexachlorobenzene	1670	1150	69	64-104
87-68-3	Hexachlorobutadiene	1670	1060	64	56-99
77-47-4	Hexachlorocyclopentadiene	1670	1070	64	32-93
67-72-1	Hexachloroethane	1670	1020	61	47-96
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1210	73	60-110
78-59-1	Isophorone	1670	1180	71	60-100
91-57-6	2-Methylnaphthalene	1670	1160	70	60-104
88-74-4	2-Nitroaniline	1670	1150	69	61-105
99-09-2	3-Nitroaniline	1670	912	55	34-84
100-01-6	4-Nitroaniline	1670	1140	68	53-105
91-20-3	Naphthalene	1670	1120	67	58-96
98-95-3	Nitrobenzene	1670	1110	67	58-98
621-64-7	N-Nitroso-di-n-propylamine	1670	1090	65	54-95
86-30-6	N-Nitrosodiphenylamine	1670	1180	71	66-106
85-01-8	Phenanthrene	1670	1220	73	66-105
129-00-0	Pyrene	1670	1310	79	66-109
120-82-1	1,2,4-Trichlorobenzene	1670	1100	66	58-97

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	68%	45-114%
4165-62-2	Phenol-d5	70%	44-124%
118-79-6	2,4,6-Tribromophenol	70%	50-128%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-BS	L034655.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	63%	41-123%
321-60-8	2-Fluorobiphenyl	63%	46-122%
1718-51-0	Terphenyl-d14	71%	45-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-MS	L034497.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
OP18327-MSD	L034498.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
F44781-2	L034496.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Compound	F44781-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		200	109	55	102	51	7	10-80/45
95-57-8	2-Chlorophenol	ND		100	57.3	57	49.6	50	14	43-109/27
59-50-7	4-Chloro-3-methyl phenol	ND		100	71.8	72	64.8	65	10	57-109/20
120-83-2	2,4-Dichlorophenol	ND		100	62.5	63	55.5	56	12	49-114/23
105-67-9	2,4-Dimethylphenol	ND		100	51.2	51	44.9	45	13	32-103/24
51-28-5	2,4-Dinitrophenol	ND		200	52.3	26	54.2	27	4	20-131/28
534-52-1	4,6-Dinitro-o-cresol	ND		200	141	71	117	59	19	46-130/23
95-48-7	2-Methylphenol	ND		100	57.0	57	45.3	45	23	40-102/25
	3&4-Methylphenol	ND		200	107	54	95.6	48	11	39-97/24
88-75-5	2-Nitrophenol	ND		100	59.9	60	51.7	52	15	46-115/26
100-02-7	4-Nitrophenol	ND		200	95.2	48	96.1	48	1	28-81/30
87-86-5	Pentachlorophenol	ND		200	33.8	17*	ND	0*	200*	53-128/22
108-95-2	Phenol	ND		100	31.1	31	29.1	29	7	19-81/33
95-95-4	2,4,5-Trichlorophenol	ND		100	72.6	73	61.4	61	17	56-110/19
88-06-2	2,4,6-Trichlorophenol	ND		100	69.0	69	60.9	61	12	55-112/19
83-32-9	Acenaphthene	ND		100	69.3	69	60.5	61	14	58-109/18
208-96-8	Acenaphthylene	ND		100	69.8	70	61.0	61	13	59-103/18
120-12-7	Anthracene	ND		100	80.0	80	75.1	75	6	65-108/16
92-87-5	Benzidine	ND		100	40.4	40	134	134*	107*	11-98/21
56-55-3	Benzo(a)anthracene	ND		100	80.1	80	75.5	76	6	68-106/17
50-32-8	Benzo(a)pyrene	ND		100	77.3	77	72.7	73	6	61-108/18
205-99-2	Benzo(b)fluoranthene	ND		100	82.1	82	79.0	79	4	65-109/18
191-24-2	Benzo(g,h,i)perylene	ND		100	76.9	77	70.8	71	8	60-114/19
207-08-9	Benzo(k)fluoranthene	ND		100	78.7	79	71.8	72	9	66-111/17
101-55-3	4-Bromophenyl phenyl ether	ND		100	75.9	76	66.9	67*	13	68-108/17
85-68-7	Butyl benzyl phthalate	ND		100	82.3	82	73.5	74	11	64-111/18
100-51-6	Benzyl Alcohol	ND		100	46.3	46	87.5	88	62*	44-105/26
91-58-7	2-Chloronaphthalene	ND		100	63.7	64	55.7	56*	13	57-102/20
106-47-8	4-Chloroaniline	ND		100	62.3	62	117	117*	61*	37-106/27
218-01-9	Chrysene	ND		100	79.2	79	73.2	73	8	69-106/17
111-91-1	bis(2-Chloroethoxy)methane	ND		100	56.8	57	48.4	48	16	46-106/24
111-44-4	bis(2-Chloroethyl)ether	ND		100	60.9	61	47.7	48	24	48-114/28
108-60-1	bis(2-Chloroisopropyl)ether	ND		100	54.0	54	48.3	48	11	43-110/26
7005-72-3	4-Chlorophenyl phenyl ether	ND		100	74.8	75	66.3	66	12	66-107/17
95-50-1	1,2-Dichlorobenzene	ND		100	55.0	55	49.6	50	10	45-103/24
541-73-1	1,3-Dichlorobenzene	ND		100	53.4	53	47.0	47	13	42-100/24

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-MS	L034497.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
OP18327-MSD	L034498.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
F44781-2	L034496.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Compound	F44781-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-46-7	1,4-Dichlorobenzene	ND		100	54.1	54	49.0	49	10	43-102/24
121-14-2	2,4-Dinitrotoluene	ND		100	80.8	81	73.6	74	9	60-108/18
606-20-2	2,6-Dinitrotoluene	ND		100	72.4	72	67.4	67	7	59-105/18
91-94-1	3,3'-Dichlorobenzidine	ND		100	77.9	78	160	160*	69*	21-120/24
53-70-3	Dibenzo(a,h)anthracene	ND		100	78.4	78	71.1	71	10	59-112/18
132-64-9	Dibenzofuran	ND		100	72.7	73	142	142*	65*	65-105/17
84-74-2	Di-n-butyl phthalate	ND		100	79.1	79	73.2	73	8	68-109/18
117-84-0	Di-n-octyl phthalate	ND		100	89.0	89	82.0	82	8	59-127/23
84-66-2	Diethyl phthalate	ND		100	78.1	78	73.0	73	7	64-111/18
131-11-3	Dimethyl phthalate	ND		100	76.0	76	71.4	71	6	63-109/17
117-81-7	bis(2-Ethylhexyl)phthalate	ND		100	81.6	82	73.1	73	11	58-119/21
206-44-0	Fluoranthene	ND		100	83.0	83	77.5	78	7	68-110/18
86-73-7	Fluorene	ND		100	74.5	75	68.1	68	9	62-106/17
118-74-1	Hexachlorobenzene	ND		100	74.6	75	67.8	68	10	66-106/16
87-68-3	Hexachlorobutadiene	ND		100	57.7	58	51.2	51	12	46-107/26
77-47-4	Hexachlorocyclopentadiene	ND		100	43.3	43	40.1	40	8	16-84/31
67-72-1	Hexachloroethane	ND		100	54.1	54	47.1	47	14	39-105/25
193-39-5	Indeno(1,2,3-cd)pyrene	ND		100	78.5	79	72.2	72	8	61-115/19
78-59-1	Isophorone	ND		100	68.8	69	59.3	59	15	54-107/22
91-57-6	2-Methylnaphthalene	ND		100	65.9	66	128	128*	64*	53-112/22
88-74-4	2-Nitroaniline	ND		100	74.7	75	156	156*	70*	60-108/18
99-09-2	3-Nitroaniline	ND		100	73.0	73	156	156*	72*	43-103/23
100-01-6	4-Nitroaniline	ND		100	82.6	83	172	172*	70*	55-110/19
91-20-3	Naphthalene	ND		100	60.2	60	53.2	53	12	49-104/24
98-95-3	Nitrobenzene	ND		100	59.0	59	53.6	54	10	50-107/25
621-64-7	N-Nitroso-di-n-propylamine	ND		100	59.4	59	50.8	51	16	47-104/23
86-30-6	N-Nitrosodiphenylamine	ND		100	74.9	75	69.2	69	8	63-110/17
85-01-8	Phenanthrene	ND		100	79.7	80	73.0	73	9	67-108/17
129-00-0	Pyrene	ND		100	80.6	81	74.8	75	7	65-108/18
120-82-1	1,2,4-Trichlorobenzene	ND		100	58.6	59	50.6	51	15	49-104/25

CAS No.	Surrogate Recoveries	MS	MSD	F44781-2	Limits
367-12-4	2-Fluorophenol	42%	43%	23%	19-90%
4165-62-2	Phenol-d5	32%	31%	14%	10-68%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18327-MS	L034497.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
OP18327-MSD	L034498.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774
F44781-2	L034496.D	1	10/30/06	NJ	10/30/06	OP18327	SL1774

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-3

CAS No.	Surrogate Recoveries	MS	MSD	F44781-2	Limits
118-79-6	2,4,6-Tribromophenol	72%	71%	70%	36-137%
4165-60-0	Nitrobenzene-d5	57%	56%	64%	49-119%
321-60-8	2-Fluorobiphenyl	60%	57%	62%	45-118%
1718-51-0	Terphenyl-d14	76%	77%	81%	46-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MS	L034667.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
OP18426-MSD	L034668.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
F44814-2	L034666.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND		3870	1820	47	1930	49	6	10-124/35
95-57-8	2-Chlorophenol	ND		1930	1140	59	1130	58	1	46-99/28
59-50-7	4-Chloro-3-methyl phenol	ND		1930	1260	65	1380	71	9	51-106/24
120-83-2	2,4-Dichlorophenol	ND		1930	1240	64	1240	64	0	51-105/24
105-67-9	2,4-Dimethylphenol	ND		1930	1030	53	983	50	5	47-95/27
51-28-5	2,4-Dinitrophenol	ND		3870	1540	40	1580	40	3	10-114/50
534-52-1	4,6-Dinitro-o-cresol	ND		3870	2580	67	2690	69	4	11-120/39
95-48-7	2-Methylphenol	ND		1930	1160	60	1150	59	1	48-96/26
	3&4-Methylphenol	ND		3870	2270	59	2290	59	1	50-95/26
88-75-5	2-Nitrophenol	ND		1930	1180	61	1160	59	2	36-109/29
100-02-7	4-Nitrophenol	ND		3870	2470	64	2650	68	7	50-107/25
87-86-5	Pentachlorophenol	ND		3870	2360	61	2410	62	2	45-118/30
108-95-2	Phenol	ND		1930	1230	64	1250	64	2	44-105/27
95-95-4	2,4,5-Trichlorophenol	ND		1930	1290	67	1340	69	4	58-101/23
88-06-2	2,4,6-Trichlorophenol	ND		1930	1260	65	1320	68	5	56-103/23
83-32-9	Acenaphthene	ND		1930	1210	63	1270	65	5	47-106/28
208-96-8	Acenaphthylene	ND		1930	1240	64	1280	66	3	48-102/24
120-12-7	Anthracene	ND		1930	1350	70	1420	73	5	52-108/26
92-87-5	Benzidine	ND		1930	ND	0*	ND	0*	nc	10-151/50
56-55-3	Benzo(a)anthracene	ND		1930	1390	72	1480	76	6	54-106/26
50-32-8	Benzo(a)pyrene	ND		1930	1350	70	1430	73	6	53-104/25
205-99-2	Benzo(b)fluoranthene	ND		1930	1350	70	1410	72	4	53-109/27
191-24-2	Benzo(g,h,i)perylene	ND		1930	1360	70	1410	72	4	53-104/28
207-08-9	Benzo(k)fluoranthene	ND		1930	1380	71	1470	75	6	55-107/29
101-55-3	4-Bromophenyl phenyl ether	ND		1930	1310	68	1360	70	4	59-102/23
85-68-7	Butyl benzyl phthalate	ND		1930	1410	73	1490	76	6	58-105/23
100-51-6	Benzyl Alcohol	ND		1930	1170	61	1150	59	2	52-97/30
91-58-7	2-Chloronaphthalene	ND		1930	1170	61	1210	62	3	54-92/24
106-47-8	4-Chloroaniline	ND		1930	742	38	975	50	27	21-92/35
218-01-9	Chrysene	ND		1930	1410	73	1490	76	6	54-108/26
111-91-1	bis(2-Chloroethoxy)methane	ND		1930	1060	55	1070	55	1	44-94/27
111-44-4	bis(2-Chloroethyl)ether	ND		1930	1090	56	1070	55	2	40-104/30
108-60-1	bis(2-Chloroisopropyl)ether	ND		1930	1020	53	1030	53	1	40-91/29
7005-72-3	4-Chlorophenyl phenyl ether	ND		1930	1270	66	1320	68	4	57-101/22
95-50-1	1,2-Dichlorobenzene	ND		1930	999	52	987	51	1	36-88/34
541-73-1	1,3-Dichlorobenzene	ND		1930	940	49	944	48	0	30-85/33

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MS	L034667.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
OP18426-MSD	L034668.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
F44814-2	L034666.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-46-7	1,4-Dichlorobenzene	ND		1930	957	49	986	51	3	30-87/33
121-14-2	2,4-Dinitrotoluene	ND		1930	1290	67	1400	72	8	46-105/28
606-20-2	2,6-Dinitrotoluene	ND		1930	1230	64	1350	69	9	46-102/26
91-94-1	3,3'-Dichlorobenzidine	ND		1930	1250	65	1350	69	8	22-104/35
53-70-3	Dibenzo(a,h)anthracene	ND		1930	1340	69	1370	70	2	53-103/26
132-64-9	Dibenzofuran	ND		1930	1220	63	1250	64	2	53-103/27
84-74-2	Di-n-butyl phthalate	ND		1930	1310	68	1370	70	4	55-104/22
117-84-0	Di-n-octyl phthalate	ND		1930	1490	77	1550	79	4	61-115/24
84-66-2	Diethyl phthalate	ND		1930	1300	67	1370	70	5	54-104/22
131-11-3	Dimethyl phthalate	ND		1930	1270	66	1360	70	7	55-100/22
117-81-7	bis(2-Ethylhexyl)phthalate	ND		1930	1420	73	1480	76	4	56-110/25
206-44-0	Fluoranthene	ND		1930	1370	71	1420	73	4	52-109/28
86-73-7	Fluorene	ND		1930	1260	65	1340	69	6	55-99/26
118-74-1	Hexachlorobenzene	ND		1930	1290	67	1330	68	3	57-99/23
87-68-3	Hexachlorobutadiene	ND		1930	1000	52	1020	52	2	36-97/35
77-47-4	Hexachlorocyclopentadiene	ND		1930	715	37	707	36	1	10-88/50
67-72-1	Hexachloroethane	ND		1930	842	44	871	45	3	22-90/41
193-39-5	Indeno(1,2,3-cd)pyrene	ND		1930	1350	70	1410	72	4	53-108/29
78-59-1	Isophorone	ND		1930	1180	61	1200	61	2	46-99/26
91-57-6	2-Methylnaphthalene	ND		1930	1200	62	1140	58	5	45-104/28
88-74-4	2-Nitroaniline	ND		1930	1280	66	1350	69	5	51-104/23
99-09-2	3-Nitroaniline	ND		1930	1130	58	1280	66	12	30-94/31
100-01-6	4-Nitroaniline	ND		1930	1270	66	1390	71	9	39-100/27
91-20-3	Naphthalene	ND		1930	1100	57	1110	57	1	44-94/31
98-95-3	Nitrobenzene	ND		1930	1110	57	1060	54	5	43-97/29
621-64-7	N-Nitroso-di-n-propylamine	ND		1930	1070	55	1070	55	0	40-98/27
86-30-6	N-Nitrosodiphenylamine	ND		1930	1280	66	1360	70	6	55-104/22
85-01-8	Phenanthrene	ND		1930	1350	70	1400	72	4	53-106/26
129-00-0	Pyrene	ND		1930	1450	75	1520	78	5	55-111/30
120-82-1	1,2,4-Trichlorobenzene	ND		1930	1060	55	1070	55	1	41-95/32

CAS No.	Surrogate Recoveries	MS	MSD	F44814-2	Limits
367-12-4	2-Fluorophenol	56%	57%	51%	45-114%
4165-62-2	Phenol-d5	59%	61%	56%	44-124%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18426-MS	L034667.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
OP18426-MSD	L034668.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781
F44814-2	L034666.D	1	11/07/06	NJ	11/07/06	OP18426	SL1781

The QC reported here applies to the following samples: Method: SW846 8270C

F44814-1, F44814-2

CAS No.	Surrogate Recoveries	MS	MSD	F44814-2	Limits
118-79-6	2,4,6-Tribromophenol	64%	72%	63%	50-128%
4165-60-0	Nitrobenzene-d5	55%	56%	53%	41-123%
321-60-8	2-Fluorobiphenyl	55%	59%	54%	46-122%
1718-51-0	Terphenyl-d14	68%	76%	63%	45-135%

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18355-MB	TT03024.D	1	11/05/06	SKW	10/31/06	OP18355	GTT110

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-3

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.050	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.050	0.015	ug/l	
319-85-7	beta-BHC	ND	0.050	0.020	ug/l	
319-86-8	delta-BHC	ND	0.050	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.050	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.050	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.050	0.015	ug/l	
60-57-1	Dieldrin	ND	0.050	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.10	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.10	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.10	0.020	ug/l	
72-20-8	Endrin	ND	0.10	0.040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.10	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.10	0.040	ug/l	
53494-70-5	Endrin ketone	ND	0.10	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.050	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.10	0.020	ug/l	
76-44-8	Heptachlor	ND	0.050	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.050	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.10	0.040	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.3	ug/l	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	91%	60-138%
2051-24-3	Decachlorobiphenyl	99%	31-148%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-MB	TT03305.D	1	11/12/06	VS	11/09/06	OP18466	GTT117

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-1, F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.7	0.67	ug/kg	
319-84-6	alpha-BHC	ND	1.7	0.67	ug/kg	
319-85-7	beta-BHC	ND	1.7	0.67	ug/kg	
319-86-8	delta-BHC	ND	1.7	0.67	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.7	0.67	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.7	0.67	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.7	0.67	ug/kg	
60-57-1	Dieldrin	ND	1.7	0.67	ug/kg	
72-54-8	4,4'-DDD	ND	3.3	0.67	ug/kg	
72-55-9	4,4'-DDE	ND	3.3	0.67	ug/kg	
50-29-3	4,4'-DDT	ND	3.3	1.0	ug/kg	
72-20-8	Endrin	ND	3.3	0.67	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.3	0.67	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.3	1.3	ug/kg	
53494-70-5	Endrin ketone	ND	3.3	0.67	ug/kg	
959-98-8	Endosulfan-I	ND	1.7	0.67	ug/kg	
33213-65-9	Endosulfan-II	ND	3.3	0.67	ug/kg	
76-44-8	Heptachlor	ND	1.7	0.67	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.7	0.67	ug/kg	
72-43-5	Methoxychlor	ND	3.3	1.3	ug/kg	
8001-35-2	Toxaphene	ND	83	42	ug/kg	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	78%	60-142%
2051-24-3	Decachlorobiphenyl	87%	61-153%

Method Blank Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-MB	TT03349.D	1	11/13/06	VS	11/09/06	OP18466	GTT118

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-1, F44814-2

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.7	0.67	ug/kg	
319-84-6	alpha-BHC	ND	1.7	0.67	ug/kg	
319-85-7	beta-BHC	ND	1.7	0.67	ug/kg	
319-86-8	delta-BHC	ND	1.7	0.67	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.7	0.67	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.7	0.67	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.7	0.67	ug/kg	
60-57-1	Dieldrin	ND	1.7	0.67	ug/kg	
72-54-8	4,4'-DDD	ND	3.3	0.67	ug/kg	
72-55-9	4,4'-DDE	ND	3.3	0.67	ug/kg	
50-29-3	4,4'-DDT	ND	3.3	1.0	ug/kg	
72-20-8	Endrin	ND	3.3	0.67	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.3	0.67	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.3	1.3	ug/kg	
53494-70-5	Endrin ketone	ND	3.3	0.67	ug/kg	
959-98-8	Endosulfan-I	ND	1.7	0.67	ug/kg	
33213-65-9	Endosulfan-II	ND	3.3	0.67	ug/kg	
76-44-8	Heptachlor	ND	1.7	0.67	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.7	0.67	ug/kg	
72-43-5	Methoxychlor	ND	3.3	1.3	ug/kg	
8001-35-2	Toxaphene	ND	83	42	ug/kg	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	82%	60-142%
2051-24-3	Decachlorobiphenyl	90%	61-153%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18355-BS	TT03023.D	1	11/05/06	SKW	10/31/06	OP18355	GTT110

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-3

7.2

7

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
309-00-2	Aldrin	0.5	0.47	94	70-127
319-84-6	alpha-BHC	0.5	0.52	104	65-136
319-85-7	beta-BHC	0.5	0.50	100	68-133
319-86-8	delta-BHC	0.5	0.46	92	48-126
58-89-9	gamma-BHC (Lindane)	0.5	0.52	104	69-137
5103-71-9	alpha-Chlordane	0.5	0.51	102	74-127
5103-74-2	gamma-Chlordane	0.5	0.53	106	75-130
60-57-1	Dieldrin	0.5	0.53	106	76-131
72-54-8	4,4'-DDD	0.5	0.54	108	76-140
72-55-9	4,4'-DDE	0.5	0.53	106	73-137
50-29-3	4,4'-DDT	0.5	0.49	98	74-134
72-20-8	Endrin	0.5	0.50	100	78-134
1031-07-8	Endosulfan sulfate	0.5	0.49	98	73-127
7421-93-4	Endrin aldehyde	0.5	0.097	19	5-104
53494-70-5	Endrin ketone	0.5	0.52	104	80-128
959-98-8	Endosulfan-I	0.5	0.51	102	76-128
33213-65-9	Endosulfan-II	0.5	0.54	108	77-131
76-44-8	Heptachlor	0.5	0.50	100	62-137
1024-57-3	Heptachlor epoxide	0.5	0.51	102	74-130
72-43-5	Methoxychlor	0.5	0.48	96	77-131

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	91%	60-138%
2051-24-3	Decachlorobiphenyl	95%	31-148%

Blank Spike Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-BS	TT03304.D	1	11/12/06	VS	11/09/06	OP18466	GTT117

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-1, F44814-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
309-00-2	Aldrin	16.7	15.8	95	67-130
319-84-6	alpha-BHC	16.7	15.6	94	70-135
319-85-7	beta-BHC	16.7	15.6	94	75-130
319-86-8	delta-BHC	16.7	11.4	68	53-126
58-89-9	gamma-BHC (Lindane)	16.7	15.5	93	73-136
5103-71-9	alpha-Chlordane	16.7	15.9	95	78-129
5103-74-2	gamma-Chlordane	16.7	16.5	99	78-132
60-57-1	Dieldrin	16.7	16.1	97	79-136
72-54-8	4,4'-DDD	16.7	16.3	98	76-142
72-55-9	4,4'-DDE	16.7	16.4	98	78-143
50-29-3	4,4'-DDT	16.7	16.7	100	84-141
72-20-8	Endrin	16.7	17.3	104	79-138
1031-07-8	Endosulfan sulfate	16.7	15.0	90	78-128
7421-93-4	Endrin aldehyde	16.7	13.3	80	5-103
53494-70-5	Endrin ketone	16.7	15.5	93	79-129
959-98-8	Endosulfan-I	16.7	15.3	92	79-128
33213-65-9	Endosulfan-II	16.7	15.7	94	78-132
76-44-8	Heptachlor	16.7	15.6	94	71-136
1024-57-3	Heptachlor epoxide	16.7	15.5	93	76-133
72-43-5	Methoxychlor	16.7	15.5	93	81-137

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	88%	60-142%
2051-24-3	Decachlorobiphenyl	91%	61-153%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18355-MS	TT03029.D	1	11/05/06	SKW	10/31/06	OP18355	GTT110
OP18355-MSD	TT03030.D	1	11/05/06	SKW	10/31/06	OP18355	GTT110
F44745-1	TT03028.D	1	11/05/06	SKW	10/31/06	OP18355	GTT110

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-3

7.3 7

CAS No.	Compound	F44745-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
309-00-2	Aldrin	ND		1	0.92	92	0.90	90	2	73-135/25
319-84-6	alpha-BHC	ND		1	0.99	99	0.96	96	3	75-134/24
319-85-7	beta-BHC	ND		1	0.96	96	0.96	96	0	73-141/23
319-86-8	delta-BHC	ND		1	0.86	86	0.87	87	1	29-148/32
58-89-9	gamma-BHC (Lindane)	ND		1	1.0	100	1.0	100	0	75-140/21
5103-71-9	alpha-Chlordane	ND		1	0.99	99	1.0	100	1	73-135/22
5103-74-2	gamma-Chlordane	ND		1	1.0	100	1.0	100	0	74-138/26
60-57-1	Dieldrin	ND		1	1.0	100	1.0	100	0	74-141/23
72-54-8	4,4'-DDD	ND		1	1.1	110	1.1	110	0	81-142/24
72-55-9	4,4'-DDE	ND		1	1.1	110	1.1	110	0	77-139/26
50-29-3	4,4'-DDT	ND		1	0.99	99	0.97	97	2	65-147/29
72-20-8	Endrin	ND		1	1.0	100	0.99	99	1	72-149/21
1031-07-8	Endosulfan sulfate	ND		1	0.98	98	0.99	99	1	66-140/31
7421-93-4	Endrin aldehyde	ND		1	0.18	18	0.16	16	12	5-113/49
53494-70-5	Endrin ketone	ND		1	1.0	100	1.1	110	10	75-138/25
959-98-8	Endosulfan-I	ND		1	1.0	100	1.0	100	0	74-139/21
33213-65-9	Endosulfan-II	ND		1	1.0	100	1.0	100	0	70-145/25
76-44-8	Heptachlor	ND		1	0.97	97	0.96	96	1	74-136/25
1024-57-3	Heptachlor epoxide	ND		1	1.0	100	1.0	100	0	75-138/21
72-43-5	Methoxychlor	ND		1	0.94	94	0.92	92	2	69-145/27

CAS No.	Surrogate Recoveries	MS	MSD	F44745-1	Limits
877-09-8	Tetrachloro-m-xylene	87%	87%	88%	60-138%
2051-24-3	Decachlorobiphenyl	95%	94%	96%	31-148%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44814
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-MS	TT03316.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
OP18466-MSD	TT03317.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
F44814-2	TT03312.D	1	11/12/06	VS	11/09/06	OP18466	GTT117

The QC reported here applies to the following samples: Method: SW846 8081A

F44814-1, F44814-2

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
309-00-2	Aldrin	ND		20.1	14.5	72	15.8	78	9	57-142/23
319-84-6	alpha-BHC	ND		20.1	16.1	80	16.6	82	3	53-147/24
319-85-7	beta-BHC	ND		20.1	16.8	84	17.1	85	2	58-152/18
319-86-8	delta-BHC	ND		20.1	12.3	61	12.7	63	3	37-148/23
58-89-9	gamma-BHC (Lindane)	ND		20.1	16.6	83	17.5	87	5	59-146/21
5103-71-9	alpha-Chlordane	ND		20.1	16.6	83	16.8	83	1	59-147/21
5103-74-2	gamma-Chlordane	ND		20.1	17.3	86	17.6	87	2	55-152/20
60-57-1	Dieldrin	ND		20.1	17.1	85	17.2	85	1	59-142/20
72-54-8	4,4'-DDD	ND		20.1	17.3	86	17.5	87	1	56-167/25
72-55-9	4,4'-DDE	ND		20.1	17.8	89	17.8	88	0	58-158/21
50-29-3	4,4'-DDT	ND		20.1	19.0	95	18.4	91	3	60-157/25
72-20-8	Endrin	ND		20.1	18.1	90	18.4	91	2	59-153/21
1031-07-8	Endosulfan sulfate	ND		20.1	16.0	80	16.6	82	4	52-151/24
7421-93-4	Endrin aldehyde	ND		20.1	14.5	72	14.7	73	1	5-106/50
53494-70-5	Endrin ketone	ND		20.1	16.5	82	16.8	83	2	44-163/22
959-98-8	Endosulfan-I	ND		20.1	15.8	79	16.6	82	5	57-145/20
33213-65-9	Endosulfan-II	ND		20.1	16.5	82	17.2	85	4	52-146/22
76-44-8	Heptachlor	ND		20.1	16.9	84	17.4	86	3	61-145/24
1024-57-3	Heptachlor epoxide	ND		20.1	16.6	83	16.6	82	0	58-147/20
72-43-5	Methoxychlor	ND		20.1	16.7	83	17.4	86	4	58-154/25

CAS No.	Surrogate Recoveries	MS	MSD	F44814-2	Limits
877-09-8	Tetrachloro-m-xylene	80%	83%	91%	60-142%
2051-24-3	Decachlorobiphenyl	82%	83%	90%	61-153%

Metals Analysis

QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10594
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date:			10/30/06		10/30/06	
Metal	RL	IDL	MB raw	final	MB raw	final
Mercury	1.0	.08	0.090	<1.0	-0.011	<1.0

Associated samples MP10594: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.1 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10594
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 10/30/06 10/30/06

Metal	F44699-1 Original	DUP	RPD	QC Limits	F44699-1 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.083	0.0	200.0(a)	0-20	0.083	2.9	3	93.9	80-120

Associated samples MP10594: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

8.1.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10594
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 10/30/06

Metal	F44699-1 Original	MSD	Spikelot HGFLWS1	% Rec	MSD RPD	QC Limit
Mercury	0.083	3.0	3	97.2	3.4	20

Associated samples MP10594: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10594
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 10/30/06

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	3.0	3	100.0	80-120

Associated samples MP10594: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.3 8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10603
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06

Metal	RL	IDL	MB raw	final
Mercury	0.083	.0067	-0.00083	<0.083

Associated samples MP10603: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10603
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06 10/31/06

Metal	F44814-2 Original	DUP	RPD	QC Limits	F44814-2 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.021	0.016	27.0 (a)	0-20	0.021	0.31	0.29	101.2	80-120

Associated samples MP10603: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

8.2.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10603
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06

Metal	F44814-2 Original	MSD	Spikelot HGFLWS1	% Rec	MSD RPD	QC Limit
Mercury	0.021	0.32	0.3	99.8	3.2	20

Associated samples MP10603: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.2.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10603
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.25	0.25	100.0	80-120

Associated samples MP10603: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.3

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10617
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:			11/01/06		11/01/06	
Metal	RL	IDL	MB raw	final	MB raw	final
Aluminum	200	18				
Antimony	6.0	3.4				
Barium	200	.4	0.020	<200	0.080	<200
Beryllium	4.0	.4				
Cadmium	5.0	.2	-0.19	<5.0	0.020	<5.0
Calcium	1000	42	anr			
Chromium	10	.6	-0.43	<10	-0.15	<10
Cobalt	50	.6				
Copper	25	.9	anr			
Iron	300	12	anr			
Lead	5.0	1.7	3.1	<5.0	3.3	<5.0
Magnesium	5000	4.3				
Manganese	15	.6	anr			
Molybdenum	50	1.3				
Nickel	40	.8				
Potassium	10000	10	anr			
Silver	10	.9	-0.14	<10	-0.63	<10
Sodium	10000	500	anr			
Thallium	10	2.3				
Tin	50	3.1				
Vanadium	50	.6				
Zinc	20	1.3				

Associated samples MP10617: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.3.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10617
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:			11/01/06					11/01/06	
Metal	F44741-8A Original	DUP	RPD	QC Limits	F44741-8A Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum									
Antimony									
Barium	45.9	10.0	128.4(a)	0-20	45.9	2040	2000	99.7	80-120
Beryllium									
Cadmium	0.88	0.0	200.0(a)	0-20	0.88	50.3	50	98.8	80-120
Calcium	anr								
Chromium	5.6	1.8	102.7(a)	0-20	5.6	209	200	101.7	80-120
Cobalt									
Copper	anr								
Iron	anr								
Lead	11.5	2.2	135.8(a)	0-20	11.5	510	500	99.7	80-120
Magnesium									
Manganese	anr								
Molybdenum									
Nickel									
Potassium	anr								
Silver	0.0	0.0	NC	0-20	0.0	52.0	50	104.0	80-120
Sodium	anr								
Thallium									
Tin									
Vanadium									
Zinc									

Associated samples MP10617: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

8.3.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10617
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/01/06

Metal	F44741-8A Original	MSD	Spikelot MPFLICP1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Barium	45.9	2030	2000	99.2	0.5	20
Beryllium						
Cadmium	0.88	49.7	50	97.6	1.2	20
Calcium	anr					
Chromium	5.6	209	200	101.7	0.0	20
Cobalt						
Copper	anr					
Iron	anr					
Lead	11.5	506	500	98.9	0.8	20
Magnesium						
Manganese	anr					
Molybdenum						
Nickel						
Potassium	anr					
Silver	0.0	52.3	50	104.6	0.6	20
Sodium	anr					
Thallium						
Tin						
Vanadium						
Zinc						

Associated samples MP10617: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.3.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10617
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/01/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum				
Antimony				
Barium	2060	2000	103.0	80-120
Beryllium				
Cadmium	49.4	50	98.8	80-120
Calcium	anr			
Chromium	206	200	103.0	80-120
Cobalt				
Copper	anr			
Iron	anr			
Lead	508	500	101.6	80-120
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Potassium	anr			
Silver	52.0	50	104.0	80-120
Sodium	anr			
Thallium				
Tin				
Vanadium				
Zinc				

Associated samples MP10617: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.3.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10617
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/01/06

Metal	F44741-8A Original	SDL 1:5	RPD	QC Limits
Aluminum				
Antimony				
Barium	45.9	45.1	1.7	0-10
Beryllium				
Cadmium	0.880	1.34	52.3 (a)	0-10
Calcium	anr			
Chromium	5.56	3.85	30.8 (a)	0-10
Cobalt				
Copper	anr			
Iron	anr			
Lead	11.5	26.8	133.3(a)	0-10
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Potassium	anr			
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Thallium				
Tin				
Vanadium				
Zinc				

Associated samples MP10617: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

8.3.4

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10628
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/02/06

Metal	RL	IDL	MB raw	final
Aluminum	20	1.8		
Arsenic	0.80	.28	0.11	<0.80
Barium	20	.04	0.023	<20
Cadmium	0.40	.02	0.018	<0.40
Calcium	500	4.2		
Chromium	1.0	.06	0.0090	<1.0
Iron	10	1.2	anr	
Lead	10	.17	0.047	<10
Magnesium	500	.43		
Selenium	10	.2	0.027	<10
Silver	1.0	.09	-0.046	<1.0

Associated samples MP10628: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.4.1 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10628
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:			11/02/06					11/02/06	
Metal	F44814-2 Original	DUP	RPD	QC Limits	F44814-2 Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum									
Arsenic	3.1	3.1	0.0	0-20	3.1	244	244	98.9	80-120
Barium	87.2	85.3	2.2	0-20	87.2	521 (b)	244	178.1N(c	80-120
Cadmium	0.024	0.0	200.0(a)	0-20	0.024	5.9	6.1	96.5	80-120
Calcium									
Chromium	11.9	12.6	5.7	0-20	11.9	37.4	24.4	104.7	80-120
Iron	anr								
Lead	4.2	4.5	6.9	0-20	4.2	64.1	60.9	98.4	80-120
Magnesium									
Selenium	0.0	0.0	NC	0-20	0.0	229	244	94.0	80-120
Silver	0.0	0.0	NC	0-20	0.0	6.4	6.1	105.1	80-120

Associated samples MP10628: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.
(b) Above high standard.
(c) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

8.4.2 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10628
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/02/06

Metal	F44814-2 Original	MSD	Spikelot MPFLICP1	% Rec	MSD RPD	QC Limit
Aluminum						
Arsenic	3.1	218	221	97.0	11.3	20
Barium	87.2	333	221	111.0	44.0 (a)	20
Cadmium	0.024	5.2	5.5	93.5	12.6	20
Calcium						
Chromium	11.9	33.8	22.1	98.9	10.1	20
Iron	anr					
Lead	4.2	56.5	55.4	94.5	12.6	20
Magnesium						
Selenium	0.0	204	221	92.1	11.5	20
Silver	0.0	5.7	5.5	103.0	11.6	20

Associated samples MP10628: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) High RPD due to possible sample nonhomogeneity.

8.4.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10628
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/02/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum				
Arsenic	211	200	105.5	80-120
Barium	210	200	105.0	80-120
Cadmium	5.4	5	108.0	80-120
Calcium				
Chromium	21.6	20	108.0	80-120
Iron	anr			
Lead	53.4	50	106.8	80-120
Magnesium				
Selenium	197	200	98.5	80-120
Silver	5.2	5	104.0	80-120

Associated samples MP10628: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.4.3 8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10628
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/02/06

Metal	F44814-2 Original	SDL 1:5	RPD	QC Limits
Aluminum				
Arsenic	27.4	22.0	19.6 (a)	0-10
Barium	773	814	5.4	0-10
Cadmium	0.210	0.00	100.0(a)	0-10
Calcium				
Chromium	105	119	12.8*(b)	0-10
Iron	anr			
Lead	36.9	44.2	19.6 (a)	0-10
Magnesium				
Selenium	0.00	0.00	NC	0-10
Silver	0.00	0.00	NC	0-10

Associated samples MP10628: F44814-1, F44814-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

8.4.4

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10652
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:			11/07/06		11/07/06	
Metal	RL	IDL	MB raw	final	MB raw	final
Aluminum	200	18	anr			
Antimony	6.0	3.4				
Arsenic	10	2.8	-0.25	<10	-2.4	<10
Barium	200	.4	anr			
Beryllium	4.0	.4				
Cadmium	5.0	.2	anr			
Calcium	1000	42				
Chromium	10	.6	anr			
Cobalt	50	.6				
Copper	25	.9				
Iron	300	12	anr			
Lead	5.0	1.7	anr			
Magnesium	5000	4.3				
Manganese	15	.6	anr			
Molybdenum	50	1.3				
Nickel	40	.8				
Potassium	10000	10				
Selenium	10	2	1.9	<10	1.0	<10
Silver	10	.9	anr			
Sodium	10000	500				
Thallium	10	2.3				
Tin	50	3.1				
Vanadium	50	.6				
Zinc	20	1.3				

Associated samples MP10652: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.5.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10652
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:			11/07/06					11/07/06	
Metal	F44835-1 Original	DUP	RPD	QC Limits	F44835-1 Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum	anr								
Antimony									
Arsenic	75.6	78.1	3.3	0-20	75.6	2210	2000	106.7	80-120
Barium	anr								
Beryllium									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron	anr								
Lead	anr								
Magnesium									
Manganese	anr								
Molybdenum									
Nickel									
Potassium									
Selenium	0.0	0.0 (a)	NC	0-20	0.0	2020	2000	101.0	80-120
Silver	anr								
Sodium									
Thallium									
Tin									
Vanadium									
Zinc									

Associated samples MP10652: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Elevated reporting limit(s) due to matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10652
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/07/06

Metal	F44835-1 Original	MSD	Spikelot MPFLICP1	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	75.6	2230	2000	107.7	0.9	20
Barium	anr					
Beryllium						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper						
Iron	anr					
Lead	anr					
Magnesium						
Manganese	anr					
Molybdenum						
Nickel						
Potassium						
Selenium	0.0	2030	2000	101.5	0.5	20
Silver	anr					
Sodium						
Thallium						
Tin						
Vanadium						
Zinc						

Associated samples MP10652: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.5.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10652
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/07/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	2000	2000	100.0	80-120
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Potassium				
Selenium	1930	2000	96.5	80-120
Silver	anr			
Sodium				
Thallium				
Tin				
Vanadium				
Zinc				

Associated samples MP10652: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.5.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F44814
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10652
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/07/06

Metal	F44835-1 Original	SDL 1:5	RPD	QC Limits
Aluminum	anr			
Antimony				
Arsenic	75.6	81.6	7.9	0-10
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silver	anr			
Sodium				
Thallium				
Tin				
Vanadium				
Zinc				

Associated samples MP10652: F44814-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.5.4

8

SOIL

F44808

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

11/15/06

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT 9050361.01.04

Accutest Job Number: F44808

Sampling Date: 10/27/06

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ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F44808

HOLMN
Project No: PROJECT 9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F44808-1	10/27/06	09:00 JM	10/28/06	SO	Soil	SD-08-SB21-2
F44808-2	10/27/06	09:00 JM	10/28/06	SO	Soil	SD-08-SB21-2a
F44808-3	10/27/06	09:30 JM	10/28/06	SO	Soil	SD-08-SB21-6
F44808-4	10/27/06	10:45 JM	10/28/06	SO	Soil	SD-08-SB23-4
F44808-5	10/27/06	11:15 JM	10/28/06	SO	Soil	SD-08-SB23-7
F44808-6	10/27/06	00:00 JM	10/28/06	SO	Trip Blank Soil	TRIP BLANK

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F44808

Site: HOLMN **Report Date** 11/15/2006 2:19:57

5 Samples, 1 Trip Blank were collected on 10/27/2006 and received at Accutest on 10/28/2006 properly preserved, at 3.2 Deg. C and intact. These Samples received an Accutest job number of F44808. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO **Batch ID:** VG1573

All samples were analyzed within the recommended method holding time.

Sample(s) F44735-2MS, F44735-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Blank Spike Recovery(s) for Vinyl Acetate are outside control limits. Passed in MS/MSD, SW-846 8000 requirements are met

BS, MS/MSD Recovery(s) for Acrolein are outside control limits. Biased high, not detcted in the samples, data integrity not adversely affected. Probable cause due to matrix interference.

Extractables by GCMS By Method SW846 8270C

Matrix: SO **Batch ID:** OP18412

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44735-2MS, F44735-2MSD were used as the QC samples indicated.

MS/MSD Recovery(s) for Benzidine are outside control limits. See Blank Spike. Probable cause due to matrix interference.

RPD(s) for MSD for Benzoic acid are outside control limits for sample OP18412-MSD. Probable cause due to sample homogeneity.

Sample(s) F44808-1, F44808-2 have surrogates outside control limits. Probable cause due to matrix interference.

F44808-2: Confirmed ND by re-extraction and reanalysis.

F44808-1: Confirmed ND by re-extraction and reanalysis.

Matrix: SO **Batch ID:** OP18469

Sample(s) F44808-1, F44808-2 have surrogates outside control limits. Probable cause due to matrix interference.

F44808-2: Confirmation run.

F44808-1: Confirmation run.

Extractables by GC By Method SW846 8081A

Matrix: SO **Batch ID:** OP18466

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) F44814-2MS, F44814-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010B

Matrix: SO **Batch ID:** MP10630

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F44808-1DUP, F44808-1MS, F44808-1MSD, F44808-1SDL were used as the QC samples for metals.

RPD(s) for Serial Dilution for Arsenic, Cadmium are outside control limits for sample MP10630-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

F44808-5 for Selenium: Elevated reporting limit(s) due to matrix interference.
F44808-3 for Selenium: Elevated reporting limit(s) due to matrix interference.
F44808-4 for Selenium: Elevated reporting limit(s) due to matrix interference.

Metals By Method SW846 7471A

Matrix: SO **Batch ID:** MP10605

All samples were digested within the recommended method holding time.
All samples were analyzed within the recommended method holding time.
All method blanks for this batch meet method specific criteria.
Sample(s) F44776-34DUP, F44776-34MS were used as the QC samples for metals.

Wet Chemistry By Method EPA 160.3 M

Matrix: SO **Batch ID:** GN22800

Sample(s) F44808-1DUP were used as the QC samples for Solids, Percent.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: November 15, 2006

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	85.1
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040975.D	1	11/02/06	SH	10/28/06 10:50	n/a	VG1573
Run #2							

	Initial Weight
Run #1	6.28 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	47	23	ug/kg	
75-05-8	Acetonitrile	ND	47	33	ug/kg	
107-02-8	Acrolein	ND	23	14	ug/kg	
107-13-1	Acrylonitrile	ND	23	12	ug/kg	
107-05-1	Allyl chloride	ND	23	4.7	ug/kg	
71-43-2	Benzene	ND	4.7	1.9	ug/kg	
100-44-7	Benzyl Chloride	ND	4.7	2.8	ug/kg	
108-86-1	Bromobenzene	ND	4.7	1.9	ug/kg	
74-97-5	Bromochloromethane	ND	4.7	1.9	ug/kg	
75-27-4	Bromodichloromethane	ND	4.7	1.9	ug/kg	
75-25-2	Bromoform	ND	4.7	1.9	ug/kg	
104-51-8	n-Butylbenzene	ND	4.7	2.8	ug/kg	
135-98-8	sec-Butylbenzene	ND	4.7	1.9	ug/kg	
98-06-6	tert-Butylbenzene	ND	4.7	1.9	ug/kg	
108-90-7	Chlorobenzene	ND	4.7	1.9	ug/kg	
75-00-3	Chloroethane	ND	4.7	2.8	ug/kg	
67-66-3	Chloroform	ND	4.7	1.9	ug/kg	
544-10-5	1-Chlorohexane	ND	4.7	1.9	ug/kg	
95-49-8	o-Chlorotoluene	ND	4.7	1.9	ug/kg	
106-43-4	p-Chlorotoluene	ND	4.7	1.9	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	23	12	ug/kg	
75-15-0	Carbon disulfide	ND	4.7	1.9	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.7	1.9	ug/kg	
75-34-3	1,1-Dichloroethane	ND	4.7	1.9	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	4.7	1.9	ug/kg	
563-58-6	1,1-Dichloropropene	ND	4.7	1.9	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.7	2.8	ug/kg	
106-93-4	1,2-Dibromoethane	ND	4.7	1.9	ug/kg	
107-06-2	1,2-Dichloroethane	ND	4.7	1.9	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.7	1.9	ug/kg	
142-28-9	1,3-Dichloropropane	ND	4.7	1.9	ug/kg	
594-20-7	2,2-Dichloropropane	ND	4.7	1.9	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	85.1
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	4.7	1.9	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.7	2.8	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	4.7	1.9	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.7	1.9	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	23	4.7	ug/kg	
541-73-1	m-Dichlorobenzene	ND	4.7	1.9	ug/kg	
95-50-1	o-Dichlorobenzene	ND	4.7	1.9	ug/kg	
106-46-7	p-Dichlorobenzene	ND	4.7	1.9	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	4.7	1.9	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.7	1.9	ug/kg	
100-41-4	Ethylbenzene	ND	4.7	1.9	ug/kg	
97-63-2	Ethyl methacrylate	ND	23	4.7	ug/kg	
76-13-1	Freon 113	ND	4.7	1.9	ug/kg	
591-78-6	2-Hexanone	ND	23	9.4	ug/kg	
87-68-3	Hexachlorobutadiene	ND	4.7	1.9	ug/kg	
110-54-3	Hexane	ND	4.7	2.8	ug/kg	
98-82-8	Isopropylbenzene	ND	4.7	1.9	ug/kg	
99-87-6	p-Isopropyltoluene	ND	4.7	1.9	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	23	9.4	ug/kg	
126-98-7	Methacrylonitrile	ND	23	9.4	ug/kg	
74-83-9	Methyl bromide	ND	4.7	1.9	ug/kg	
74-87-3	Methyl chloride	ND	4.7	1.9	ug/kg	
74-88-4	Methyl iodide	ND	9.4	1.9	ug/kg	
80-62-6	Methyl methacrylate	ND	23	4.7	ug/kg	
74-95-3	Methylene bromide	ND	4.7	1.9	ug/kg	
75-09-2	Methylene chloride	ND	9.4	4.7	ug/kg	
78-93-3	Methyl ethyl ketone	ND	23	9.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	4.7	1.9	ug/kg	
91-20-3	Naphthalene	ND	4.7	1.9	ug/kg	
76-01-7	Pentachloroethane	ND	23	4.7	ug/kg	
107-12-0	Propionitrile	ND	47	9.4	ug/kg	
103-65-1	n-Propylbenzene	ND	4.7	1.9	ug/kg	
100-42-5	Styrene	ND	4.7	1.9	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	4.7	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.7	1.9	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.7	1.9	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.7	1.9	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.7	1.9	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.7	2.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.7	1.9	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	85.1
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	4.7	2.8	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	4.7	1.9	ug/kg	
127-18-4	Tetrachloroethylene	ND	4.7	1.9	ug/kg	
108-88-3	Toluene	ND	4.7	1.9	ug/kg	
79-01-6	Trichloroethylene	ND	4.7	1.9	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.7	1.9	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	23	9.4	ug/kg	
75-01-4	Vinyl chloride	ND	4.7	1.9	ug/kg	
108-05-4	Vinyl Acetate	ND	23	9.4	ug/kg	
	m,p-Xylene	ND	9.4	2.8	ug/kg	
95-47-6	o-Xylene	ND	4.7	1.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		78-123%
2037-26-5	Toluene-D8	92%		71-137%
460-00-4	4-Bromofluorobenzene	87%		61-157%
17060-07-0	1,2-Dichloroethane-D4	100%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	85.1
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R05776.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
Run #2 [b]	L034780.D	1	11/13/06	NJ	11/10/06	OP18469	SL1785

	Initial Weight	Final Volume
Run #1	31.5 g	1.0 ml
Run #2	29.5 g	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	930	370	ug/kg	
95-57-8	2-Chlorophenol	ND	190	37	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	37	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	37	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	930	370	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	370	75	ug/kg	
95-48-7	2-Methylphenol	ND	190	37	ug/kg	
	3&4-Methylphenol	ND	190	37	ug/kg	
88-75-5	2-Nitrophenol	ND	190	37	ug/kg	
100-02-7	4-Nitrophenol	ND	930	370	ug/kg	
87-86-5	Pentachlorophenol	ND	930	370	ug/kg	
108-95-2	Phenol	ND	190	37	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	37	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	37	ug/kg	
83-32-9	Acenaphthene	ND	190	37	ug/kg	
208-96-8	Acenaphthylene	ND	190	37	ug/kg	
120-12-7	Anthracene	ND	190	37	ug/kg	
92-87-5	Benzidine	ND	1900	930	ug/kg	
56-55-3	Benzo(a)anthracene	ND	190	37	ug/kg	
50-32-8	Benzo(a)pyrene	ND	190	37	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	190	37	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	190	75	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	190	37	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	190	37	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	370	93	ug/kg	
100-51-6	Benzyl Alcohol	ND	190	37	ug/kg	
91-58-7	2-Chloronaphthalene	ND	190	37	ug/kg	
106-47-8	4-Chloroaniline	ND	370	150	ug/kg	
218-01-9	Chrysene	ND	190	37	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	190	37	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	190	75	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST
F44808

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	85.1
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	190	37	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	190	37	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	190	37	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	190	37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	190	37	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	190	75	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	190	75	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	370	190	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	190	75	ug/kg	
132-64-9	Dibenzofuran	ND	190	37	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	370	93	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	370	190	ug/kg	
84-66-2	Diethyl phthalate	129	370	93	ug/kg	J
131-11-3	Dimethyl phthalate	ND	370	93	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	370	190	ug/kg	
206-44-0	Fluoranthene	ND	190	37	ug/kg	
86-73-7	Fluorene	ND	190	37	ug/kg	
118-74-1	Hexachlorobenzene	ND	190	37	ug/kg	
87-68-3	Hexachlorobutadiene	ND	190	75	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	190	75	ug/kg	
67-72-1	Hexachloroethane	ND	190	75	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	190	75	ug/kg	
78-59-1	Isophorone	ND	190	37	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	37	ug/kg	
88-74-4	2-Nitroaniline	ND	370	93	ug/kg	
99-09-2	3-Nitroaniline	ND	370	93	ug/kg	
100-01-6	4-Nitroaniline	ND	370	130	ug/kg	
91-20-3	Naphthalene	ND	190	37	ug/kg	
98-95-3	Nitrobenzene	ND	190	37	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	190	75	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	37	ug/kg	
85-01-8	Phenanthrene	ND	190	37	ug/kg	
129-00-0	Pyrene	ND	190	75	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	190	37	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%	72%	45-114%
4165-62-2	Phenol-d5	52%	73%	44-124%
118-79-6	2,4,6-Tribromophenol	42%	76%	50-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	85.1
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	48%	68%	41-123%
321-60-8	2-Fluorobiphenyl	49%	68%	46-122%
1718-51-0	Terphenyl-d14	51%	86%	45-135%

(a) Confirmed ND by re-extraction and reanalysis.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	85.1
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03306.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.9	0.77	ug/kg	
319-84-6	alpha-BHC	ND	1.9	0.77	ug/kg	
319-85-7	beta-BHC	ND	1.9	0.77	ug/kg	
319-86-8	delta-BHC	ND	1.9	0.77	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.9	0.77	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.9	0.77	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.9	0.77	ug/kg	
60-57-1	Dieldrin	ND	1.9	0.77	ug/kg	
72-54-8	4,4'-DDD	ND	3.9	0.77	ug/kg	
72-55-9	4,4'-DDE	ND	3.9	0.77	ug/kg	
50-29-3	4,4'-DDT	ND	3.9	1.2	ug/kg	
72-20-8	Endrin	ND	3.9	0.77	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.9	0.77	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.9	1.5	ug/kg	
53494-70-5	Endrin ketone	ND	3.9	0.77	ug/kg	
959-98-8	Endosulfan-I	ND	1.9	0.77	ug/kg	
33213-65-9	Endosulfan-II	ND	3.9	0.77	ug/kg	
76-44-8	Heptachlor	ND	1.9	0.77	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.9	0.77	ug/kg	
72-43-5	Methoxychlor	ND	3.9	1.5	ug/kg	
8001-35-2	Toxaphene	ND	96	48	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		60-142%
2051-24-3	Decachlorobiphenyl	87%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2		
Lab Sample ID:	F44808-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	85.1
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.4	0.94	0.46	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Barium	59.9	24	0.094	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.031 J	0.47	0.024	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Chromium	5.5	1.2	0.11	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Lead	2.8 J	12	0.24	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.0078 U	0.098	0.0078	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium	0.24 U	12	0.24	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Silver	0.11 U	1.2	0.11	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5327
(3) Prep QC Batch: MP10605
(4) Prep QC Batch: MP10630

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	86.6
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040976.D	1	11/02/06	SH	10/28/06 10:50	n/a	VG1573
Run #2							

	Initial Weight
Run #1	6.17 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	47	23	ug/kg	
75-05-8	Acetonitrile	ND	47	33	ug/kg	
107-02-8	Acrolein	ND	23	14	ug/kg	
107-13-1	Acrylonitrile	ND	23	12	ug/kg	
107-05-1	Allyl chloride	ND	23	4.7	ug/kg	
71-43-2	Benzene	ND	4.7	1.9	ug/kg	
100-44-7	Benzyl Chloride	ND	4.7	2.8	ug/kg	
108-86-1	Bromobenzene	ND	4.7	1.9	ug/kg	
74-97-5	Bromochloromethane	ND	4.7	1.9	ug/kg	
75-27-4	Bromodichloromethane	ND	4.7	1.9	ug/kg	
75-25-2	Bromoform	ND	4.7	1.9	ug/kg	
104-51-8	n-Butylbenzene	ND	4.7	2.8	ug/kg	
135-98-8	sec-Butylbenzene	ND	4.7	1.9	ug/kg	
98-06-6	tert-Butylbenzene	ND	4.7	1.9	ug/kg	
108-90-7	Chlorobenzene	ND	4.7	1.9	ug/kg	
75-00-3	Chloroethane	ND	4.7	2.8	ug/kg	
67-66-3	Chloroform	ND	4.7	1.9	ug/kg	
544-10-5	1-Chlorohexane	ND	4.7	1.9	ug/kg	
95-49-8	o-Chlorotoluene	ND	4.7	1.9	ug/kg	
106-43-4	p-Chlorotoluene	ND	4.7	1.9	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	23	12	ug/kg	
75-15-0	Carbon disulfide	ND	4.7	1.9	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.7	1.9	ug/kg	
75-34-3	1,1-Dichloroethane	ND	4.7	1.9	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	4.7	1.9	ug/kg	
563-58-6	1,1-Dichloropropene	ND	4.7	1.9	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.7	2.8	ug/kg	
106-93-4	1,2-Dibromoethane	ND	4.7	1.9	ug/kg	
107-06-2	1,2-Dichloroethane	ND	4.7	1.9	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.7	1.9	ug/kg	
142-28-9	1,3-Dichloropropane	ND	4.7	1.9	ug/kg	
594-20-7	2,2-Dichloropropane	ND	4.7	1.9	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	86.6
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	4.7	1.9	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.7	2.8	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	4.7	1.9	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.7	1.9	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	23	4.7	ug/kg	
541-73-1	m-Dichlorobenzene	ND	4.7	1.9	ug/kg	
95-50-1	o-Dichlorobenzene	ND	4.7	1.9	ug/kg	
106-46-7	p-Dichlorobenzene	ND	4.7	1.9	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	4.7	1.9	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.7	1.9	ug/kg	
100-41-4	Ethylbenzene	ND	4.7	1.9	ug/kg	
97-63-2	Ethyl methacrylate	ND	23	4.7	ug/kg	
76-13-1	Freon 113	ND	4.7	1.9	ug/kg	
591-78-6	2-Hexanone	ND	23	9.4	ug/kg	
87-68-3	Hexachlorobutadiene	ND	4.7	1.9	ug/kg	
110-54-3	Hexane	ND	4.7	2.8	ug/kg	
98-82-8	Isopropylbenzene	ND	4.7	1.9	ug/kg	
99-87-6	p-Isopropyltoluene	ND	4.7	1.9	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	23	9.4	ug/kg	
126-98-7	Methacrylonitrile	ND	23	9.4	ug/kg	
74-83-9	Methyl bromide	ND	4.7	1.9	ug/kg	
74-87-3	Methyl chloride	ND	4.7	1.9	ug/kg	
74-88-4	Methyl iodide	ND	9.4	1.9	ug/kg	
80-62-6	Methyl methacrylate	ND	23	4.7	ug/kg	
74-95-3	Methylene bromide	ND	4.7	1.9	ug/kg	
75-09-2	Methylene chloride	ND	9.4	4.7	ug/kg	
78-93-3	Methyl ethyl ketone	ND	23	9.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	4.7	1.9	ug/kg	
91-20-3	Naphthalene	ND	4.7	1.9	ug/kg	
76-01-7	Pentachloroethane	ND	23	4.7	ug/kg	
107-12-0	Propionitrile	ND	47	9.4	ug/kg	
103-65-1	n-Propylbenzene	ND	4.7	1.9	ug/kg	
100-42-5	Styrene	ND	4.7	1.9	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	4.7	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.7	1.9	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.7	1.9	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.7	1.9	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.7	1.9	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.7	2.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.7	1.9	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	86.6
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	4.7	2.8	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	4.7	1.9	ug/kg	
127-18-4	Tetrachloroethylene	ND	4.7	1.9	ug/kg	
108-88-3	Toluene	ND	4.7	1.9	ug/kg	
79-01-6	Trichloroethylene	ND	4.7	1.9	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.7	1.9	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	23	9.4	ug/kg	
75-01-4	Vinyl chloride	ND	4.7	1.9	ug/kg	
108-05-4	Vinyl Acetate	ND	23	9.4	ug/kg	
	m,p-Xylene	ND	9.4	2.8	ug/kg	
95-47-6	o-Xylene	ND	4.7	1.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		78-123%
2037-26-5	Toluene-D8	90%		71-137%
460-00-4	4-Bromofluorobenzene	87%		61-157%
17060-07-0	1,2-Dichloroethane-D4	94%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	86.6
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R05777.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
Run #2 [b]	L034781.D	1	11/13/06	NJ	11/10/06	OP18469	SL1785

	Initial Weight	Final Volume
Run #1	29.6 g	1.0 ml
Run #2	32.2 g	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	980	390	ug/kg	
95-57-8	2-Chlorophenol	ND	200	39	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	39	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	39	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	39	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	980	390	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	390	78	ug/kg	
95-48-7	2-Methylphenol	ND	200	39	ug/kg	
	3&4-Methylphenol	ND	200	39	ug/kg	
88-75-5	2-Nitrophenol	ND	200	39	ug/kg	
100-02-7	4-Nitrophenol	ND	980	390	ug/kg	
87-86-5	Pentachlorophenol	ND	980	390	ug/kg	
108-95-2	Phenol	ND	200	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	39	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	39	ug/kg	
83-32-9	Acenaphthene	ND	200	39	ug/kg	
208-96-8	Acenaphthylene	ND	200	39	ug/kg	
120-12-7	Anthracene	ND	200	39	ug/kg	
92-87-5	Benzidine	ND	2000	980	ug/kg	
56-55-3	Benzo(a)anthracene	ND	200	39	ug/kg	
50-32-8	Benzo(a)pyrene	ND	200	39	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	200	39	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	200	78	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	200	39	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	200	39	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	390	98	ug/kg	
100-51-6	Benzyl Alcohol	ND	200	39	ug/kg	
91-58-7	2-Chloronaphthalene	ND	200	39	ug/kg	
106-47-8	4-Chloroaniline	ND	390	160	ug/kg	
218-01-9	Chrysene	ND	200	39	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	200	39	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	200	78	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	86.6
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	200	39	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	200	39	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	39	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	39	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	200	78	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	200	78	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	390	200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	200	78	ug/kg	
132-64-9	Dibenzofuran	ND	200	39	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	390	98	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	390	200	ug/kg	
84-66-2	Diethyl phthalate	ND	390	98	ug/kg	
131-11-3	Dimethyl phthalate	ND	390	98	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	390	200	ug/kg	
206-44-0	Fluoranthene	ND	200	39	ug/kg	
86-73-7	Fluorene	ND	200	39	ug/kg	
118-74-1	Hexachlorobenzene	ND	200	39	ug/kg	
87-68-3	Hexachlorobutadiene	ND	200	78	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	200	78	ug/kg	
67-72-1	Hexachloroethane	ND	200	78	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	200	78	ug/kg	
78-59-1	Isophorone	ND	200	39	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	39	ug/kg	
88-74-4	2-Nitroaniline	ND	390	98	ug/kg	
99-09-2	3-Nitroaniline	ND	390	98	ug/kg	
100-01-6	4-Nitroaniline	ND	390	140	ug/kg	
91-20-3	Naphthalene	ND	200	39	ug/kg	
98-95-3	Nitrobenzene	ND	200	39	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	200	78	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	39	ug/kg	
85-01-8	Phenanthrene	ND	200	39	ug/kg	
129-00-0	Pyrene	ND	200	78	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	200	39	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%	63%	45-114%
4165-62-2	Phenol-d5	56%	64%	44-124%
118-79-6	2,4,6-Tribromophenol	44%	71%	50-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	86.6
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	54%	61%	41-123%
321-60-8	2-Fluorobiphenyl	55%	62%	46-122%
1718-51-0	Terphenyl-d14	59%	78%	45-135%

(a) Confirmed ND by re-extraction and reanalysis.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	86.6
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03307.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.9	0.77	ug/kg	
319-84-6	alpha-BHC	ND	1.9	0.77	ug/kg	
319-85-7	beta-BHC	ND	1.9	0.77	ug/kg	
319-86-8	delta-BHC	ND	1.9	0.77	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.9	0.77	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.9	0.77	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.9	0.77	ug/kg	
60-57-1	Dieldrin	ND	1.9	0.77	ug/kg	
72-54-8	4,4'-DDD	ND	3.8	0.77	ug/kg	
72-55-9	4,4'-DDE	ND	3.8	0.77	ug/kg	
50-29-3	4,4'-DDT	ND	3.8	1.2	ug/kg	
72-20-8	Endrin	ND	3.8	0.77	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.8	0.77	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.8	1.5	ug/kg	
53494-70-5	Endrin ketone	ND	3.8	0.77	ug/kg	
959-98-8	Endosulfan-I	ND	1.9	0.77	ug/kg	
33213-65-9	Endosulfan-II	ND	3.8	0.77	ug/kg	
76-44-8	Heptachlor	ND	1.9	0.77	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.9	0.77	ug/kg	
72-43-5	Methoxychlor	ND	3.8	1.5	ug/kg	
8001-35-2	Toxaphene	ND	96	48	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		60-142%
2051-24-3	Decachlorobiphenyl	80%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-2a		
Lab Sample ID:	F44808-2	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	86.6
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	2.4	0.89	0.43	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Barium	63.7	22	0.089	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.038 J	0.44	0.022	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Chromium	5.5	1.1	0.10	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Lead	2.9 J	11	0.22	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.013 J	0.096	0.0077	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium	0.22 U	11	0.22	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Silver	0.10 U	1.1	0.10	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5327
(3) Prep QC Batch: MP10605
(4) Prep QC Batch: MP10630

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	75.6
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040977.D	1	11/02/06	SH	10/28/06 10:50	n/a	VG1573
Run #2							

	Initial Weight
Run #1	5.62 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	59	29	ug/kg	
75-05-8	Acetonitrile	ND	59	41	ug/kg	
107-02-8	Acrolein	ND	29	18	ug/kg	
107-13-1	Acrylonitrile	ND	29	15	ug/kg	
107-05-1	Allyl chloride	ND	29	5.9	ug/kg	
71-43-2	Benzene	ND	5.9	2.4	ug/kg	
100-44-7	Benzyl Chloride	ND	5.9	3.5	ug/kg	
108-86-1	Bromobenzene	ND	5.9	2.4	ug/kg	
74-97-5	Bromochloromethane	ND	5.9	2.4	ug/kg	
75-27-4	Bromodichloromethane	ND	5.9	2.4	ug/kg	
75-25-2	Bromoform	ND	5.9	2.4	ug/kg	
104-51-8	n-Butylbenzene	ND	5.9	3.5	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.9	2.4	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.9	2.4	ug/kg	
108-90-7	Chlorobenzene	ND	5.9	2.4	ug/kg	
75-00-3	Chloroethane	ND	5.9	3.5	ug/kg	
67-66-3	Chloroform	ND	5.9	2.4	ug/kg	
544-10-5	1-Chlorohexane	ND	5.9	2.4	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.9	2.4	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.9	2.4	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	29	15	ug/kg	
75-15-0	Carbon disulfide	ND	5.9	2.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.9	2.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.9	2.4	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.9	2.4	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.9	2.4	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.9	3.5	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.9	2.4	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.9	2.4	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.9	2.4	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.9	2.4	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.9	2.4	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	75.6
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	5.9	2.4	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.9	3.5	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.9	2.4	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.9	2.4	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	29	5.9	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.9	2.4	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.9	2.4	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.9	2.4	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.9	2.4	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.9	2.4	ug/kg	
100-41-4	Ethylbenzene	ND	5.9	2.4	ug/kg	
97-63-2	Ethyl methacrylate	ND	29	5.9	ug/kg	
76-13-1	Freon 113	ND	5.9	2.4	ug/kg	
591-78-6	2-Hexanone	ND	29	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.9	2.4	ug/kg	
110-54-3	Hexane	ND	5.9	3.5	ug/kg	
98-82-8	Isopropylbenzene	ND	5.9	2.4	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.9	2.4	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	29	12	ug/kg	
126-98-7	Methacrylonitrile	ND	29	12	ug/kg	
74-83-9	Methyl bromide	ND	5.9	2.4	ug/kg	
74-87-3	Methyl chloride	ND	5.9	2.4	ug/kg	
74-88-4	Methyl iodide	ND	12	2.4	ug/kg	
80-62-6	Methyl methacrylate	ND	29	5.9	ug/kg	
74-95-3	Methylene bromide	ND	5.9	2.4	ug/kg	
75-09-2	Methylene chloride	ND	12	5.9	ug/kg	
78-93-3	Methyl ethyl ketone	ND	29	12	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.9	2.4	ug/kg	
91-20-3	Naphthalene	ND	5.9	2.4	ug/kg	
76-01-7	Pentachloroethane	ND	29	5.9	ug/kg	
107-12-0	Propionitrile	ND	59	12	ug/kg	
103-65-1	n-Propylbenzene	ND	5.9	2.4	ug/kg	
100-42-5	Styrene	ND	5.9	2.4	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.9	2.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.9	2.4	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.9	2.4	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.9	2.4	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.9	2.4	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.9	2.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.9	2.4	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	75.6
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.9	3.5	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.9	2.4	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.9	2.4	ug/kg	
108-88-3	Toluene	ND	5.9	2.4	ug/kg	
79-01-6	Trichloroethylene	ND	5.9	2.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.9	2.4	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	29	12	ug/kg	
75-01-4	Vinyl chloride	ND	5.9	2.4	ug/kg	
108-05-4	Vinyl Acetate	ND	29	12	ug/kg	
	m,p-Xylene	ND	12	3.5	ug/kg	
95-47-6	o-Xylene	ND	5.9	2.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		78-123%
2037-26-5	Toluene-D8	91%		71-137%
460-00-4	4-Bromofluorobenzene	88%		61-157%
17060-07-0	1,2-Dichloroethane-D4	94%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	75.6
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R05778.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
Run #2							

	Initial Weight	Final Volume
Run #1	31.1 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	1100	430	ug/kg	
95-57-8	2-Chlorophenol	ND	210	43	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	43	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	43	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	43	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1100	430	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	430	85	ug/kg	
95-48-7	2-Methylphenol	ND	210	43	ug/kg	
	3&4-Methylphenol	ND	210	43	ug/kg	
88-75-5	2-Nitrophenol	ND	210	43	ug/kg	
100-02-7	4-Nitrophenol	ND	1100	430	ug/kg	
87-86-5	Pentachlorophenol	ND	1100	430	ug/kg	
108-95-2	Phenol	ND	210	43	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	43	ug/kg	
83-32-9	Acenaphthene	ND	210	43	ug/kg	
208-96-8	Acenaphthylene	ND	210	43	ug/kg	
120-12-7	Anthracene	ND	210	43	ug/kg	
92-87-5	Benzidine	ND	2100	1100	ug/kg	
56-55-3	Benzo(a)anthracene	ND	210	43	ug/kg	
50-32-8	Benzo(a)pyrene	ND	210	43	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	210	43	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	210	85	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	210	43	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	210	43	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	430	110	ug/kg	
100-51-6	Benzyl Alcohol	ND	210	43	ug/kg	
91-58-7	2-Chloronaphthalene	ND	210	43	ug/kg	
106-47-8	4-Chloroaniline	ND	430	170	ug/kg	
218-01-9	Chrysene	ND	210	43	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	210	43	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	210	85	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	75.6
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	210	43	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	210	43	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	210	43	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	210	43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	210	43	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	210	85	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	210	85	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	430	210	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	210	85	ug/kg	
132-64-9	Dibenzofuran	ND	210	43	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	430	110	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	430	210	ug/kg	
84-66-2	Diethyl phthalate	ND	430	110	ug/kg	
131-11-3	Dimethyl phthalate	ND	430	110	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	430	210	ug/kg	
206-44-0	Fluoranthene	ND	210	43	ug/kg	
86-73-7	Fluorene	ND	210	43	ug/kg	
118-74-1	Hexachlorobenzene	ND	210	43	ug/kg	
87-68-3	Hexachlorobutadiene	ND	210	85	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	210	85	ug/kg	
67-72-1	Hexachloroethane	ND	210	85	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	210	85	ug/kg	
78-59-1	Isophorone	ND	210	43	ug/kg	
91-57-6	2-Methylnaphthalene	ND	210	43	ug/kg	
88-74-4	2-Nitroaniline	ND	430	110	ug/kg	
99-09-2	3-Nitroaniline	ND	430	110	ug/kg	
100-01-6	4-Nitroaniline	ND	430	150	ug/kg	
91-20-3	Naphthalene	ND	210	43	ug/kg	
98-95-3	Nitrobenzene	ND	210	43	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	210	85	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	43	ug/kg	
85-01-8	Phenanthrene	ND	210	43	ug/kg	
129-00-0	Pyrene	ND	210	85	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	210	43	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		45-114%
4165-62-2	Phenol-d5	64%		44-124%
118-79-6	2,4,6-Tribromophenol	56%		50-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	75.6
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		41-123%
321-60-8	2-Fluorobiphenyl	59%		46-122%
1718-51-0	Terphenyl-d14	62%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	75.6
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03308.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.2	0.88	ug/kg	
319-84-6	alpha-BHC	ND	2.2	0.88	ug/kg	
319-85-7	beta-BHC	ND	2.2	0.88	ug/kg	
319-86-8	delta-BHC	ND	2.2	0.88	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.2	0.88	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.2	0.88	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.2	0.88	ug/kg	
60-57-1	Dieldrin	ND	2.2	0.88	ug/kg	
72-54-8	4,4'-DDD	ND	4.4	0.88	ug/kg	
72-55-9	4,4'-DDE	ND	4.4	0.88	ug/kg	
50-29-3	4,4'-DDT	ND	4.4	1.3	ug/kg	
72-20-8	Endrin	ND	4.4	0.88	ug/kg	
1031-07-8	Endosulfan sulfate	ND	4.4	0.88	ug/kg	
7421-93-4	Endrin aldehyde	ND	4.4	1.8	ug/kg	
53494-70-5	Endrin ketone	ND	4.4	0.88	ug/kg	
959-98-8	Endosulfan-I	ND	2.2	0.88	ug/kg	
33213-65-9	Endosulfan-II	ND	4.4	0.88	ug/kg	
76-44-8	Heptachlor	ND	2.2	0.88	ug/kg	
1024-57-3	Heptachlor epoxide	ND	2.2	0.88	ug/kg	
72-43-5	Methoxychlor	ND	4.4	1.8	ug/kg	
8001-35-2	Toxaphene	ND	110	55	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		60-142%
2051-24-3	Decachlorobiphenyl	77%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB21-6		
Lab Sample ID:	F44808-3	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	75.6
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	1.6	1.0	0.51	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Barium	79.5	26	0.10	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.057 J	0.52	0.026	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Chromium	4.9	1.3	0.12	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Lead	2.2 J	13	0.26	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.0079 U	0.099	0.0079	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium [a]	26 U	52	26	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Silver	0.12 U	1.3	0.12	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5327
(3) Prep QC Batch: MP10605
(4) Prep QC Batch: MP10630

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	75.8
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040978.D	1	11/02/06	SH	10/28/06 10:50	n/a	VG1573
Run #2							

	Initial Weight
Run #1	5.15 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	64	32	ug/kg	
75-05-8	Acetonitrile	ND	64	45	ug/kg	
107-02-8	Acrolein	ND	32	19	ug/kg	
107-13-1	Acrylonitrile	ND	32	16	ug/kg	
107-05-1	Allyl chloride	ND	32	6.4	ug/kg	
71-43-2	Benzene	ND	6.4	2.6	ug/kg	
100-44-7	Benzyl Chloride	ND	6.4	3.8	ug/kg	
108-86-1	Bromobenzene	ND	6.4	2.6	ug/kg	
74-97-5	Bromochloromethane	ND	6.4	2.6	ug/kg	
75-27-4	Bromodichloromethane	ND	6.4	2.6	ug/kg	
75-25-2	Bromoform	ND	6.4	2.6	ug/kg	
104-51-8	n-Butylbenzene	ND	6.4	3.8	ug/kg	
135-98-8	sec-Butylbenzene	ND	6.4	2.6	ug/kg	
98-06-6	tert-Butylbenzene	ND	6.4	2.6	ug/kg	
108-90-7	Chlorobenzene	ND	6.4	2.6	ug/kg	
75-00-3	Chloroethane	ND	6.4	3.8	ug/kg	
67-66-3	Chloroform	ND	6.4	2.6	ug/kg	
544-10-5	1-Chlorohexane	ND	6.4	2.6	ug/kg	
95-49-8	o-Chlorotoluene	ND	6.4	2.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	6.4	2.6	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	32	16	ug/kg	
75-15-0	Carbon disulfide	ND	6.4	2.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	6.4	2.6	ug/kg	
75-34-3	1,1-Dichloroethane	ND	6.4	2.6	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	6.4	2.6	ug/kg	
563-58-6	1,1-Dichloropropene	ND	6.4	2.6	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	6.4	3.8	ug/kg	
106-93-4	1,2-Dibromoethane	ND	6.4	2.6	ug/kg	
107-06-2	1,2-Dichloroethane	ND	6.4	2.6	ug/kg	
78-87-5	1,2-Dichloropropane	ND	6.4	2.6	ug/kg	
142-28-9	1,3-Dichloropropane	ND	6.4	2.6	ug/kg	
594-20-7	2,2-Dichloropropane	ND	6.4	2.6	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	75.8
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	6.4	2.6	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.4	3.8	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	6.4	2.6	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	6.4	2.6	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	32	6.4	ug/kg	
541-73-1	m-Dichlorobenzene	ND	6.4	2.6	ug/kg	
95-50-1	o-Dichlorobenzene	ND	6.4	2.6	ug/kg	
106-46-7	p-Dichlorobenzene	ND	6.4	2.6	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	6.4	2.6	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	6.4	2.6	ug/kg	
100-41-4	Ethylbenzene	ND	6.4	2.6	ug/kg	
97-63-2	Ethyl methacrylate	ND	32	6.4	ug/kg	
76-13-1	Freon 113	ND	6.4	2.6	ug/kg	
591-78-6	2-Hexanone	ND	32	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	6.4	2.6	ug/kg	
110-54-3	Hexane	ND	6.4	3.8	ug/kg	
98-82-8	Isopropylbenzene	ND	6.4	2.6	ug/kg	
99-87-6	p-Isopropyltoluene	ND	6.4	2.6	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	32	13	ug/kg	
126-98-7	Methacrylonitrile	ND	32	13	ug/kg	
74-83-9	Methyl bromide	ND	6.4	2.6	ug/kg	
74-87-3	Methyl chloride	ND	6.4	2.6	ug/kg	
74-88-4	Methyl iodide	ND	13	2.6	ug/kg	
80-62-6	Methyl methacrylate	ND	32	6.4	ug/kg	
74-95-3	Methylene bromide	ND	6.4	2.6	ug/kg	
75-09-2	Methylene chloride	ND	13	6.4	ug/kg	
78-93-3	Methyl ethyl ketone	ND	32	13	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	6.4	2.6	ug/kg	
91-20-3	Naphthalene	ND	6.4	2.6	ug/kg	
76-01-7	Pentachloroethane	ND	32	6.4	ug/kg	
107-12-0	Propionitrile	ND	64	13	ug/kg	
103-65-1	n-Propylbenzene	ND	6.4	2.6	ug/kg	
100-42-5	Styrene	ND	6.4	2.6	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	6.4	2.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	6.4	2.6	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.4	2.6	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	6.4	2.6	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.4	2.6	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	6.4	3.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.4	2.6	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	75.8
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	6.4	3.8	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	6.4	2.6	ug/kg	
127-18-4	Tetrachloroethylene	ND	6.4	2.6	ug/kg	
108-88-3	Toluene	ND	6.4	2.6	ug/kg	
79-01-6	Trichloroethylene	ND	6.4	2.6	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.4	2.6	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	32	13	ug/kg	
75-01-4	Vinyl chloride	ND	6.4	2.6	ug/kg	
108-05-4	Vinyl Acetate	ND	32	13	ug/kg	
	m,p-Xylene	ND	13	3.8	ug/kg	
95-47-6	o-Xylene	ND	6.4	2.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		78-123%
2037-26-5	Toluene-D8	91%		71-137%
460-00-4	4-Bromofluorobenzene	88%		61-157%
17060-07-0	1,2-Dichloroethane-D4	93%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	75.8
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R05779.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
Run #2							

	Initial Weight	Final Volume
Run #1	32.4 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	1000	410	ug/kg	
95-57-8	2-Chlorophenol	ND	200	41	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	41	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	41	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	41	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1000	410	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	410	81	ug/kg	
95-48-7	2-Methylphenol	ND	200	41	ug/kg	
	3&4-Methylphenol	ND	200	41	ug/kg	
88-75-5	2-Nitrophenol	ND	200	41	ug/kg	
100-02-7	4-Nitrophenol	ND	1000	410	ug/kg	
87-86-5	Pentachlorophenol	ND	1000	410	ug/kg	
108-95-2	Phenol	ND	200	41	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	41	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	41	ug/kg	
83-32-9	Acenaphthene	ND	200	41	ug/kg	
208-96-8	Acenaphthylene	ND	200	41	ug/kg	
120-12-7	Anthracene	ND	200	41	ug/kg	
92-87-5	Benzidine	ND	2000	1000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	200	41	ug/kg	
50-32-8	Benzo(a)pyrene	ND	200	41	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	200	41	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	200	81	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	200	41	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	200	41	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	410	100	ug/kg	
100-51-6	Benzyl Alcohol	ND	200	41	ug/kg	
91-58-7	2-Chloronaphthalene	ND	200	41	ug/kg	
106-47-8	4-Chloroaniline	ND	410	160	ug/kg	
218-01-9	Chrysene	ND	200	41	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	200	41	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	200	81	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST
F44808

Report of Analysis

3.4 3

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	75.8
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	200	41	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	200	41	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	41	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	41	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	41	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	200	81	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	200	81	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	410	200	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	200	81	ug/kg	
132-64-9	Dibenzofuran	ND	200	41	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	410	100	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	410	200	ug/kg	
84-66-2	Diethyl phthalate	150	410	100	ug/kg	J
131-11-3	Dimethyl phthalate	ND	410	100	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	410	200	ug/kg	
206-44-0	Fluoranthene	ND	200	41	ug/kg	
86-73-7	Fluorene	ND	200	41	ug/kg	
118-74-1	Hexachlorobenzene	ND	200	41	ug/kg	
87-68-3	Hexachlorobutadiene	ND	200	81	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	200	81	ug/kg	
67-72-1	Hexachloroethane	ND	200	81	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	200	81	ug/kg	
78-59-1	Isophorone	ND	200	41	ug/kg	
91-57-6	2-Methylnaphthalene	ND	200	41	ug/kg	
88-74-4	2-Nitroaniline	ND	410	100	ug/kg	
99-09-2	3-Nitroaniline	ND	410	100	ug/kg	
100-01-6	4-Nitroaniline	ND	410	140	ug/kg	
91-20-3	Naphthalene	ND	200	41	ug/kg	
98-95-3	Nitrobenzene	ND	200	41	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	200	81	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	41	ug/kg	
85-01-8	Phenanthrene	ND	200	41	ug/kg	
129-00-0	Pyrene	ND	200	81	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	200	41	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		45-114%
4165-62-2	Phenol-d5	62%		44-124%
118-79-6	2,4,6-Tribromophenol	64%		50-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST
F44808

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	75.8
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		41-123%
321-60-8	2-Fluorobiphenyl	60%		46-122%
1718-51-0	Terphenyl-d14	67%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	75.8
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03309.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.2	0.87	ug/kg	
319-84-6	alpha-BHC	ND	2.2	0.87	ug/kg	
319-85-7	beta-BHC	ND	2.2	0.87	ug/kg	
319-86-8	delta-BHC	ND	2.2	0.87	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.2	0.87	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.2	0.87	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.2	0.87	ug/kg	
60-57-1	Dieldrin	ND	2.2	0.87	ug/kg	
72-54-8	4,4'-DDD	ND	4.4	0.87	ug/kg	
72-55-9	4,4'-DDE	ND	4.4	0.87	ug/kg	
50-29-3	4,4'-DDT	ND	4.4	1.3	ug/kg	
72-20-8	Endrin	ND	4.4	0.87	ug/kg	
1031-07-8	Endosulfan sulfate	ND	4.4	0.87	ug/kg	
7421-93-4	Endrin aldehyde	ND	4.4	1.7	ug/kg	
53494-70-5	Endrin ketone	ND	4.4	0.87	ug/kg	
959-98-8	Endosulfan-I	ND	2.2	0.87	ug/kg	
33213-65-9	Endosulfan-II	ND	4.4	0.87	ug/kg	
76-44-8	Heptachlor	ND	2.2	0.87	ug/kg	
1024-57-3	Heptachlor epoxide	ND	2.2	0.87	ug/kg	
72-43-5	Methoxychlor	ND	4.4	1.7	ug/kg	
8001-35-2	Toxaphene	ND	110	55	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		60-142%
2051-24-3	Decachlorobiphenyl	85%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-4		
Lab Sample ID:	F44808-4	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	75.8
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.0	1.0	0.50	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Barium	75.9	26	0.10	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.080 J	0.52	0.026	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Chromium	5.2	1.3	0.12	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Lead	2.5 J	13	0.26	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.0075 U	0.094	0.0075	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium [a]	26 U	52	26	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Silver	0.12 U	1.3	0.12	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5327
(3) Prep QC Batch: MP10605
(4) Prep QC Batch: MP10630

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	77.3
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040979.D	1	11/02/06	SH	10/28/06 10:50	n/a	VG1573
Run #2							

	Initial Weight
Run #1	5.20 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	62	31	ug/kg	
75-05-8	Acetonitrile	ND	62	44	ug/kg	
107-02-8	Acrolein	ND	31	19	ug/kg	
107-13-1	Acrylonitrile	ND	31	16	ug/kg	
107-05-1	Allyl chloride	ND	31	6.2	ug/kg	
71-43-2	Benzene	ND	6.2	2.5	ug/kg	
100-44-7	Benzyl Chloride	ND	6.2	3.7	ug/kg	
108-86-1	Bromobenzene	ND	6.2	2.5	ug/kg	
74-97-5	Bromochloromethane	ND	6.2	2.5	ug/kg	
75-27-4	Bromodichloromethane	ND	6.2	2.5	ug/kg	
75-25-2	Bromoform	ND	6.2	2.5	ug/kg	
104-51-8	n-Butylbenzene	ND	6.2	3.7	ug/kg	
135-98-8	sec-Butylbenzene	ND	6.2	2.5	ug/kg	
98-06-6	tert-Butylbenzene	ND	6.2	2.5	ug/kg	
108-90-7	Chlorobenzene	ND	6.2	2.5	ug/kg	
75-00-3	Chloroethane	ND	6.2	3.7	ug/kg	
67-66-3	Chloroform	ND	6.2	2.5	ug/kg	
544-10-5	1-Chlorohexane	ND	6.2	2.5	ug/kg	
95-49-8	o-Chlorotoluene	ND	6.2	2.5	ug/kg	
106-43-4	p-Chlorotoluene	ND	6.2	2.5	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	31	16	ug/kg	
75-15-0	Carbon disulfide	ND	6.2	2.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	6.2	2.5	ug/kg	
75-34-3	1,1-Dichloroethane	ND	6.2	2.5	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	6.2	2.5	ug/kg	
563-58-6	1,1-Dichloropropene	ND	6.2	2.5	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	6.2	3.7	ug/kg	
106-93-4	1,2-Dibromoethane	ND	6.2	2.5	ug/kg	
107-06-2	1,2-Dichloroethane	ND	6.2	2.5	ug/kg	
78-87-5	1,2-Dichloropropane	ND	6.2	2.5	ug/kg	
142-28-9	1,3-Dichloropropane	ND	6.2	2.5	ug/kg	
594-20-7	2,2-Dichloropropane	ND	6.2	2.5	ug/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	77.3
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	6.2	2.5	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.2	3.7	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	6.2	2.5	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	6.2	2.5	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	31	6.2	ug/kg	
541-73-1	m-Dichlorobenzene	ND	6.2	2.5	ug/kg	
95-50-1	o-Dichlorobenzene	ND	6.2	2.5	ug/kg	
106-46-7	p-Dichlorobenzene	ND	6.2	2.5	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	6.2	2.5	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	6.2	2.5	ug/kg	
100-41-4	Ethylbenzene	ND	6.2	2.5	ug/kg	
97-63-2	Ethyl methacrylate	ND	31	6.2	ug/kg	
76-13-1	Freon 113	ND	6.2	2.5	ug/kg	
591-78-6	2-Hexanone	ND	31	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	6.2	2.5	ug/kg	
110-54-3	Hexane	ND	6.2	3.7	ug/kg	
98-82-8	Isopropylbenzene	ND	6.2	2.5	ug/kg	
99-87-6	p-Isopropyltoluene	ND	6.2	2.5	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	31	12	ug/kg	
126-98-7	Methacrylonitrile	ND	31	12	ug/kg	
74-83-9	Methyl bromide	ND	6.2	2.5	ug/kg	
74-87-3	Methyl chloride	ND	6.2	2.5	ug/kg	
74-88-4	Methyl iodide	ND	12	2.5	ug/kg	
80-62-6	Methyl methacrylate	ND	31	6.2	ug/kg	
74-95-3	Methylene bromide	ND	6.2	2.5	ug/kg	
75-09-2	Methylene chloride	ND	12	6.2	ug/kg	
78-93-3	Methyl ethyl ketone	ND	31	12	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	6.2	2.5	ug/kg	
91-20-3	Naphthalene	ND	6.2	2.5	ug/kg	
76-01-7	Pentachloroethane	ND	31	6.2	ug/kg	
107-12-0	Propionitrile	ND	62	12	ug/kg	
103-65-1	n-Propylbenzene	ND	6.2	2.5	ug/kg	
100-42-5	Styrene	ND	6.2	2.5	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	6.2	2.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	6.2	2.5	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	6.2	2.5	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	6.2	2.5	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.2	2.5	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	6.2	3.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.2	2.5	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8260B SW846 5035	Percent Solids:	77.3
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	6.2	3.7	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	6.2	2.5	ug/kg	
127-18-4	Tetrachloroethylene	ND	6.2	2.5	ug/kg	
108-88-3	Toluene	ND	6.2	2.5	ug/kg	
79-01-6	Trichloroethylene	ND	6.2	2.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.2	2.5	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	31	12	ug/kg	
75-01-4	Vinyl chloride	ND	6.2	2.5	ug/kg	
108-05-4	Vinyl Acetate	ND	31	12	ug/kg	
	m,p-Xylene	ND	12	3.7	ug/kg	
95-47-6	o-Xylene	ND	6.2	2.5	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		78-123%
2037-26-5	Toluene-D8	89%		71-137%
460-00-4	4-Bromofluorobenzene	88%		61-157%
17060-07-0	1,2-Dichloroethane-D4	93%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	77.3
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R05780.D	1	11/07/06	NJ	11/06/06	OP18412	SR271
Run #2							

	Initial Weight	Final Volume
Run #1	29.8 g	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	1100	430	ug/kg	
95-57-8	2-Chlorophenol	ND	220	43	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	43	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	43	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	43	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1100	430	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	430	87	ug/kg	
95-48-7	2-Methylphenol	ND	220	43	ug/kg	
	3&4-Methylphenol	ND	220	43	ug/kg	
88-75-5	2-Nitrophenol	ND	220	43	ug/kg	
100-02-7	4-Nitrophenol	ND	1100	430	ug/kg	
87-86-5	Pentachlorophenol	ND	1100	430	ug/kg	
108-95-2	Phenol	ND	220	43	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	43	ug/kg	
83-32-9	Acenaphthene	ND	220	43	ug/kg	
208-96-8	Acenaphthylene	ND	220	43	ug/kg	
120-12-7	Anthracene	ND	220	43	ug/kg	
92-87-5	Benzidine	ND	2200	1100	ug/kg	
56-55-3	Benzo(a)anthracene	ND	220	43	ug/kg	
50-32-8	Benzo(a)pyrene	ND	220	43	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	220	43	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	220	87	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	220	43	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	220	43	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	430	110	ug/kg	
100-51-6	Benzyl Alcohol	ND	220	43	ug/kg	
91-58-7	2-Chloronaphthalene	ND	220	43	ug/kg	
106-47-8	4-Chloroaniline	ND	430	170	ug/kg	
218-01-9	Chrysene	ND	220	43	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	220	43	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	220	87	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	77.3
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	220	43	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	220	43	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	220	43	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	220	43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	220	43	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	220	87	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	220	87	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	430	220	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	220	87	ug/kg	
132-64-9	Dibenzofuran	ND	220	43	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	430	110	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	430	220	ug/kg	
84-66-2	Diethyl phthalate	ND	430	110	ug/kg	
131-11-3	Dimethyl phthalate	ND	430	110	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	430	220	ug/kg	
206-44-0	Fluoranthene	ND	220	43	ug/kg	
86-73-7	Fluorene	ND	220	43	ug/kg	
118-74-1	Hexachlorobenzene	ND	220	43	ug/kg	
87-68-3	Hexachlorobutadiene	ND	220	87	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	220	87	ug/kg	
67-72-1	Hexachloroethane	ND	220	87	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	220	87	ug/kg	
78-59-1	Isophorone	ND	220	43	ug/kg	
91-57-6	2-Methylnaphthalene	ND	220	43	ug/kg	
88-74-4	2-Nitroaniline	ND	430	110	ug/kg	
99-09-2	3-Nitroaniline	ND	430	110	ug/kg	
100-01-6	4-Nitroaniline	ND	430	150	ug/kg	
91-20-3	Naphthalene	ND	220	43	ug/kg	
98-95-3	Nitrobenzene	ND	220	43	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	220	87	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	43	ug/kg	
85-01-8	Phenanthrene	ND	220	43	ug/kg	
129-00-0	Pyrene	ND	220	87	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	220	43	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		45-114%
4165-62-2	Phenol-d5	65%		44-124%
118-79-6	2,4,6-Tribromophenol	68%		50-128%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8270C SW846 3550B	Percent Solids:	77.3
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		41-123%
321-60-8	2-Fluorobiphenyl	62%		46-122%
1718-51-0	Terphenyl-d14	67%		45-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

3.5 3

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
Method:	SW846 8081A SW846 3550B	Percent Solids:	77.3
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03310.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.1	0.86	ug/kg	
319-84-6	alpha-BHC	ND	2.1	0.86	ug/kg	
319-85-7	beta-BHC	ND	2.1	0.86	ug/kg	
319-86-8	delta-BHC	ND	2.1	0.86	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.1	0.86	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.1	0.86	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.1	0.86	ug/kg	
60-57-1	Dieldrin	ND	2.1	0.86	ug/kg	
72-54-8	4,4'-DDD	ND	4.3	0.86	ug/kg	
72-55-9	4,4'-DDE	ND	4.3	0.86	ug/kg	
50-29-3	4,4'-DDT	ND	4.3	1.3	ug/kg	
72-20-8	Endrin	ND	4.3	0.86	ug/kg	
1031-07-8	Endosulfan sulfate	ND	4.3	0.86	ug/kg	
7421-93-4	Endrin aldehyde	ND	4.3	1.7	ug/kg	
53494-70-5	Endrin ketone	ND	4.3	0.86	ug/kg	
959-98-8	Endosulfan-I	ND	2.1	0.86	ug/kg	
33213-65-9	Endosulfan-II	ND	4.3	0.86	ug/kg	
76-44-8	Heptachlor	ND	2.1	0.86	ug/kg	
1024-57-3	Heptachlor epoxide	ND	2.1	0.86	ug/kg	
72-43-5	Methoxychlor	ND	4.3	1.7	ug/kg	
8001-35-2	Toxaphene	ND	110	54	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	74%		60-142%
2051-24-3	Decachlorobiphenyl	79%		61-153%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

ACCUTEST Laboratories
F44808

Report of Analysis

Client Sample ID:	SD-08-SB23-7		
Lab Sample ID:	F44808-5	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/28/06
		Percent Solids:	77.3
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	0.99 J	1.0	0.50	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Barium	60.1	26	0.10	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Cadmium	0.027 J	0.52	0.026	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Chromium	3.5	1.3	0.12	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Lead	1.8 J	13	0.26	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Mercury	0.0078 U	0.098	0.0078	mg/kg	1	10/31/06	10/31/06	MS	SW846 7471A [1]	SW846 7471A [3]
Selenium [a]	26 U	52	26	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]
Silver	0.12 U	1.3	0.12	mg/kg	1	11/03/06	11/03/06	RS	SW846 6010B [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA5317
(2) Instrument QC Batch: MA5327
(3) Prep QC Batch: MP10605
(4) Prep QC Batch: MP10630

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44808-6	Date Sampled:	10/27/06
Matrix:	SO - Trip Blank Soil	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0040980.D	1	11/02/06	SH	n/a	n/a	VG1573
Run #2							

	Initial Weight
Run #1	5.00 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	25	ug/kg	
75-05-8	Acetonitrile	ND	50	35	ug/kg	
107-02-8	Acrolein	ND	25	15	ug/kg	
107-13-1	Acrylonitrile	ND	25	13	ug/kg	
107-05-1	Allyl chloride	ND	25	5.0	ug/kg	
71-43-2	Benzene	ND	5.0	2.0	ug/kg	
100-44-7	Benzyl Chloride	ND	5.0	3.0	ug/kg	
108-86-1	Bromobenzene	ND	5.0	2.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	2.0	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	2.0	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	3.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	3.0	ug/kg	
67-66-3	Chloroform	ND	5.0	2.0	ug/kg	
544-10-5	1-Chlorohexane	ND	5.0	2.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	25	13	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	2.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	2.0	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	3.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	2.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	2.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	2.0	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44808-6	Date Sampled:	10/27/06
Matrix:	SO - Trip Blank Soil	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	5.0	2.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	3.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	25	5.0	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	2.0	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	2.0	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	2.0	ug/kg	
97-63-2	Ethyl methacrylate	ND	25	5.0	ug/kg	
76-13-1	Freon 113	ND	5.0	2.0	ug/kg	
591-78-6	2-Hexanone	ND	25	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/kg	
110-54-3	Hexane	ND	5.0	3.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	2.0	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	25	10	ug/kg	
126-98-7	Methacrylonitrile	ND	25	10	ug/kg	
74-83-9	Methyl bromide	ND	5.0	2.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	2.0	ug/kg	
74-88-4	Methyl iodide	ND	10	2.0	ug/kg	
80-62-6	Methyl methacrylate	ND	25	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	2.0	ug/kg	
75-09-2	Methylene chloride	ND	10	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	25	10	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	2.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	2.0	ug/kg	
76-01-7	Pentachloroethane	ND	25	5.0	ug/kg	
107-12-0	Propionitrile	ND	50	10	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	2.0	ug/kg	
100-42-5	Styrene	ND	5.0	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	2.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	2.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	2.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	2.0	ug/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F44808-6	Date Sampled:	10/27/06
Matrix:	SO - Trip Blank Soil	Date Received:	10/28/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	3.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	2.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	2.0	ug/kg	
108-88-3	Toluene	ND	5.0	2.0	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	2.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	2.0	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	25	10	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	2.0	ug/kg	
108-05-4	Vinyl Acetate	ND	25	10	ug/kg	
	m,p-Xylene	ND	10	3.0	ug/kg	
95-47-6	o-Xylene	ND	5.0	2.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		78-123%
2037-26-5	Toluene-D8	92%		71-137%
460-00-4	4-Bromofluorobenzene	88%		61-157%
17060-07-0	1,2-Dichloroethane-D4	95%		74-125%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F44808

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]:102720061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: Jim Moore

Sample Analysis Requested [2]: VOC 8260; SVOC 8270; Pest 8081; RCRA Metals 6010/7470

Quality Assurance Samples [6]: Ambient Blank Lot Control Number; Equipment Blank Lot Control Number; Trip Blank Lot Control Number

	Field Sample ID (20 Character Max)	ERPIMS LOCID (10 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (24Hour) (Minutes)	Sample Depth (beginning - ending)		SA Code [3]	Sample Number [4]	Sample Matrix [5]	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
1	*SD-08-SB21-2	SD-08-SB21-2	27/10/2006	0900	1'	2'	N	1	SO	4	02	02	02	02							1
2	*SD-08-SB21-2a	SD-08-SB21-2a	27/10/2006	0900	1'	2'	FD	1	SO	4	02	02	02	02							1
3	*SD-08-SB21-6	SD-08-SB21-6	27/10/2006	0930	5'	6'	N	1	SO	4	02	02	02	02							1
4	SD-08-SB23-4	SD-08-SB23-4	27/10/2006	1045	3'	4'	N	1	SO	4	02	02	02	02							1
5	SD-08-SB23-7	SD-08-SB23-7	27/10/2006	1115	6'	7'	N	1	SO	4	02	02	02	02							1
6	Trip Blank	Field QC	27/10/2006	0900			TB		AQ	1	02										1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15 * 8 oz jars OK'ed with Lab
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;mdayben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.		10-27-2006	1600			
2.				For		
3.					10/28/06	9:00

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX AB/Bill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + assedy number (e.g. 08-05-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-a) Sample, FR = Field Replicate (-b) Sample, EB = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-c)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OB = Bail Out, WG = Groundwater, WS = Surface Water, SO = Soil, SS = Sediment, SL = Sludge, SS = Surface Soil Sample, WQ = Aqueous Blank Sample (trip, equipment, ambient, etc). SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

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F44808: Chain of Custody
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ACCUTEST

F44808

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F44808 CLIENT: Bhate PROJECT: SD 08

DATE/TIME RECEIVED: 10/28/06 9:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 3.2

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS:

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [x] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 15

NUMBER OF 5035 FIELD KITS ? trip

NUMBER OR LAB FILTERED METALS ? ∝

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE 10/28/06 TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

4.1 4

F44808: Chain of Custody
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ACCUTEST F44808

GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-MB	G0040961.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	50	25	ug/kg	
75-05-8	Acetonitrile	ND	50	35	ug/kg	
107-02-8	Acrolein	ND	25	15	ug/kg	
107-13-1	Acrylonitrile	ND	25	13	ug/kg	
107-05-1	Allyl chloride	ND	25	5.0	ug/kg	
71-43-2	Benzene	ND	5.0	2.0	ug/kg	
100-44-7	Benzyl Chloride	ND	5.0	3.0	ug/kg	
108-86-1	Bromobenzene	ND	5.0	2.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	2.0	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	2.0	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	3.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	3.0	ug/kg	
67-66-3	Chloroform	ND	5.0	2.0	ug/kg	
544-10-5	1-Chlorohexane	ND	5.0	2.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	2.0	ug/kg	
110-75-8	2-Chloroethyl vinyl ether	ND	25	13	ug/kg	
75-15-0	Carbon disulfide	ND	5.0	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	2.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	2.0	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	3.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	2.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	2.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	2.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	3.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-MB	G0040961.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	25	5.0	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	2.0	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	2.0	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	2.0	ug/kg	
97-63-2	Ethyl methacrylate	ND	25	5.0	ug/kg	
76-13-1	Freon 113	ND	5.0	2.0	ug/kg	
591-78-6	2-Hexanone	ND	25	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/kg	
110-54-3	Hexane	ND	5.0	3.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	2.0	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	25	10	ug/kg	
126-98-7	Methacrylonitrile	ND	25	10	ug/kg	
74-83-9	Methyl bromide	ND	5.0	2.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	2.0	ug/kg	
74-88-4	Methyl iodide	ND	10	2.0	ug/kg	
80-62-6	Methyl methacrylate	ND	25	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	2.0	ug/kg	
75-09-2	Methylene chloride	ND	10	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	25	10	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	2.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	2.0	ug/kg	
76-01-7	Pentachloroethane	ND	25	5.0	ug/kg	
107-12-0	Propionitrile	ND	50	10	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	2.0	ug/kg	
100-42-5	Styrene	ND	5.0	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	2.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	2.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	2.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	2.0	ug/kg	

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-MB	G0040961.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	3.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	2.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	2.0	ug/kg	
108-88-3	Toluene	ND	5.0	2.0	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	2.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	2.0	ug/kg	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	25	10	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	2.0	ug/kg	
108-05-4	Vinyl Acetate	ND	25	10	ug/kg	
	m,p-Xylene	ND	10	3.0	ug/kg	
95-47-6	o-Xylene	ND	5.0	2.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	101%	78-123%
2037-26-5	Toluene-D8	91%	71-137%
460-00-4	4-Bromofluorobenzene	94%	61-157%
17060-07-0	1,2-Dichloroethane-D4	97%	74-125%

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-BS	G0040960.D	1	11/02/06	SH	n/a	n/a	VG1573

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
67-64-1	Acetone	250	233	93	51-136
75-05-8	Acetonitrile	500	425	85	50-150 [a]
107-02-8	Acrolein	250	464	186*	28-180
107-13-1	Acrylonitrile	250	258	103	43-151
107-05-1	Allyl chloride	50	47.6	95	50-150 [a]
71-43-2	Benzene	50	55.8	112	74-124
100-44-7	Benzyl Chloride	50	51.4	103	50-150 [a]
108-86-1	Bromobenzene	50	53.2	106	78-117
74-97-5	Bromochloromethane	50	50.9	102	77-126
75-27-4	Bromodichloromethane	50	51.9	104	74-124
75-25-2	Bromoform	50	49.9	100	79-127
104-51-8	n-Butylbenzene	50	56.5	113	75-131
135-98-8	sec-Butylbenzene	50	58.1	116	78-128
98-06-6	tert-Butylbenzene	50	56.1	112	76-126
108-90-7	Chlorobenzene	50	54.7	109	78-117
75-00-3	Chloroethane	50	60.4	121	63-147
67-66-3	Chloroform	50	56.9	114	75-121
544-10-5	1-Chlorohexane	50	58.2	116	76-137
95-49-8	o-Chlorotoluene	50	54.5	109	79-124
106-43-4	p-Chlorotoluene	50	56.0	112	79-124
110-75-8	2-Chloroethyl vinyl ether	250	264	106	31-165
75-15-0	Carbon disulfide	50	59.6	119	59-148
56-23-5	Carbon tetrachloride	50	57.9	116	67-131
75-34-3	1,1-Dichloroethane	50	57.3	115	71-118
75-35-4	1,1-Dichloroethylene	50	56.3	113	64-126
563-58-6	1,1-Dichloropropene	50	56.8	114	73-132
96-12-8	1,2-Dibromo-3-chloropropane	50	47.7	95	71-128
106-93-4	1,2-Dibromoethane	50	51.2	102	78-117
107-06-2	1,2-Dichloroethane	50	52.9	106	72-120
78-87-5	1,2-Dichloropropane	50	54.3	109	74-126
142-28-9	1,3-Dichloropropane	50	51.0	102	77-117
594-20-7	2,2-Dichloropropane	50	59.5	119	66-126
124-48-1	Dibromochloromethane	50	51.4	103	78-120
75-71-8	Dichlorodifluoromethane	50	31.8	64	33-172
156-59-2	cis-1,2-Dichloroethylene	50	53.9	108	75-124
10061-01-5	cis-1,3-Dichloropropene	50	55.3	111	72-120

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-BS	G0040960.D	1	11/02/06	SH	n/a	n/a	VG1573

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	50	46.8	94	50-150 [a]
541-73-1	m-Dichlorobenzene	50	56.5	113	79-119
95-50-1	o-Dichlorobenzene	50	55.7	111	78-119
106-46-7	p-Dichlorobenzene	50	57.4	115	78-117
156-60-5	trans-1,2-Dichloroethylene	50	55.6	111	70-122
10061-02-6	trans-1,3-Dichloropropene	50	56.9	114	75-118
100-41-4	Ethylbenzene	50	54.4	109	77-120
97-63-2	Ethyl methacrylate	50	47.5	95	50-150 [a]
76-13-1	Freon 113	50	58.2	116	66-147
591-78-6	2-Hexanone	250	232	93	68-136
87-68-3	Hexachlorobutadiene	50	59.1	118	69-139
110-54-3	Hexane	50	57.7	115	55-166
98-82-8	Isopropylbenzene	50	58.7	117	79-134
99-87-6	p-Isopropyltoluene	50	58.4	117	80-134
108-10-1	4-Methyl-2-pentanone	250	231	92	69-136
126-98-7	Methacrylonitrile	500	488	98	50-150 [a]
74-83-9	Methyl bromide	50	51.7	103	52-156
74-87-3	Methyl chloride	50	58.2	116	63-142
74-88-4	Methyl iodide	50	53.0	106	65-133
80-62-6	Methyl methacrylate	50	46.4	93	63-143
74-95-3	Methylene bromide	50	52.3	105	74-121
75-09-2	Methylene chloride	50	57.1	114	51-142
78-93-3	Methyl ethyl ketone	250	233	93	63-138
1634-04-4	Methyl Tert Butyl Ether	50	50.7	101	77-131
91-20-3	Naphthalene	50	52.3	105	75-134
76-01-7	Pentachloroethane	50	55.1	110	50-150 [a]
107-12-0	Propionitrile	500	496	99	50-150 [a]
103-65-1	n-Propylbenzene	50	56.5	113	77-125
100-42-5	Styrene	50	53.6	107	74-120
630-20-6	1,1,1,2-Tetrachloroethane	50	52.7	105	76-118
71-55-6	1,1,1-Trichloroethane	50	58.3	117	70-131
79-34-5	1,1,2,2-Tetrachloroethane	50	51.8	104	76-121
79-00-5	1,1,2-Trichloroethane	50	50.0	100	77-118
87-61-6	1,2,3-Trichlorobenzene	50	56.5	113	76-129
96-18-4	1,2,3-Trichloropropane	50	52.3	105	75-121
120-82-1	1,2,4-Trichlorobenzene	50	56.3	113	73-128

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1573-BS	G0040960.D	1	11/02/06	SH	n/a	n/a	VG1573

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	50	55.1	110	79-121
108-67-8	1,3,5-Trimethylbenzene	50	56.2	112	78-126
127-18-4	Tetrachloroethylene	50	53.9	108	68-127
108-88-3	Toluene	50	54.0	108	74-118
79-01-6	Trichloroethylene	50	57.9	116	72-122
75-69-4	Trichlorofluoromethane	50	54.9	110	60-147
110-57-6	Trans-1,4-Dichloro-2-Butene	50	50.9	102	68-131
75-01-4	Vinyl chloride	50	45.4	91	64-144
108-05-4	Vinyl Acetate	250	354	142*	47-132
	m,p-Xylene	100	112	112	79-122
95-47-6	o-Xylene	50	54.7	109	75-123

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	78-123%
2037-26-5	Toluene-D8	97%	71-137%
460-00-4	4-Bromofluorobenzene	96%	61-157%
17060-07-0	1,2-Dichloroethane-D4	98%	74-125%

(a) Advisory control limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44735-2MS	G0040964.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2MSD	G0040965.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2	G0040962.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		339	209	62	253	73	19	14-140/33
75-05-8	Acetonitrile	ND		677	366	54	424	61	15	50-150/30 [a]
107-02-8	Acrolein	ND		339	706	208*	758	218*	7	20-144/42
107-13-1	Acrylonitrile	ND		339	245	72	280	80	13	22-116/31
107-05-1	Allyl chloride	ND		67.7	58.5	86	61.7	89	5	50-150/30 [a]
71-43-2	Benzene	ND		67.7	68.0	100	74.6	107	9	63-135/23
100-44-7	Benzyl Chloride	ND		67.7	51.5	76	55.9	80	8	50-150/30 [a]
108-86-1	Bromobenzene	ND		67.7	64.4	95	76.2	109	17	56-145/30
74-97-5	Bromochloromethane	ND		67.7	58.5	86	65.5	94	11	64-120/23
75-27-4	Bromodichloromethane	ND		67.7	62.7	93	68.6	99	9	63-126/23
75-25-2	Bromoform	ND		67.7	53.8	79	59.0	85	9	54-109/24
104-51-8	n-Butylbenzene	ND		67.7	72.5	107	83.6	120	14	45-159/32
135-98-8	sec-Butylbenzene	ND		67.7	73.7	109	81.3	117	10	54-164/31
98-06-6	tert-Butylbenzene	ND		67.7	69.9	103	79.2	114	12	60-161/30
108-90-7	Chlorobenzene	ND		67.7	67.8	100	72.7	104	7	64-130/24
75-00-3	Chloroethane	ND		67.7	78.0	115	87.7	126	12	53-172/28
67-66-3	Chloroform	ND		67.7	69.5	103	75.6	109	8	68-131/24
544-10-5	1-Chlorohexane	ND		67.7	72.8	107	77.0	111	6	52-162/26
95-49-8	o-Chlorotoluene	ND		67.7	66.6	98	76.3	110	14	59-162/32
106-43-4	p-Chlorotoluene	ND		67.7	68.4	101	77.1	111	12	59-155/29
110-75-8	2-Chloroethyl vinyl ether	ND		339	276	81	309	89	11	16-159/31
75-15-0	Carbon disulfide	ND		67.7	71.3	105	79.2	114	10	47-165/29
56-23-5	Carbon tetrachloride	ND		67.7	70.9	105	75.1	108	6	64-148/24
75-34-3	1,1-Dichloroethane	ND		67.7	69.6	103	75.4	108	8	64-130/25
75-35-4	1,1-Dichloroethylene	ND		67.7	68.4	101	74.1	106	8	55-149/28
563-58-6	1,1-Dichloropropene	ND		67.7	71.9	106	77.1	111	7	67-148/25
96-12-8	1,2-Dibromo-3-chloropropane	ND		67.7	45.5	67	52.0	75	13	39-105/33
106-93-4	1,2-Dibromoethane	ND		67.7	54.9	81	60.0	86	9	55-107/24
107-06-2	1,2-Dichloroethane	ND		67.7	59.9	88	66.0	95	10	60-114/22
78-87-5	1,2-Dichloropropane	ND		67.7	63.7	94	72.1	104	12	65-128/23
142-28-9	1,3-Dichloropropane	ND		67.7	56.0	83	61.3	88	9	58-114/25
594-20-7	2,2-Dichloropropane	ND		67.7	70.5	104	73.3	105	4	60-144/27
124-48-1	Dibromochloromethane	ND		67.7	57.8	85	61.9	89	7	60-119/23
75-71-8	Dichlorodifluoromethane	ND		67.7	38.7	57	43.4	62	11	41-185/30
156-59-2	cis-1,2-Dichloroethylene	ND		67.7	65.5	97	69.3	100	6	66-132/24
10061-01-5	cis-1,3-Dichloropropene	ND		67.7	64.0	94	70.8	102	10	57-118/25

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44735-2MS	G0040964.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2MSD	G0040965.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2	G0040962.D	1	11/02/06	SH	n/a	n/a	VG1573

5.3

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The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		67.7	48.3	71	57.2	82	17	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		67.7	69.7	103	77.5	111	11	59-138/28
95-50-1	o-Dichlorobenzene	ND		67.7	66.3	98	75.6	109	13	56-128/27
106-46-7	p-Dichlorobenzene	ND		67.7	69.4	102	79.0	113	13	57-134/26
156-60-5	trans-1,2-Dichloroethylene	ND		67.7	69.0	102	74.4	107	8	63-137/27
10061-02-6	trans-1,3-Dichloropropene	ND		67.7	65.2	96	70.1	101	7	58-115/25
100-41-4	Ethylbenzene	ND		67.7	67.6	100	71.9	103	6	63-142/25
97-63-2	Ethyl methacrylate	ND		67.7	49.7	73	55.7	80	11	50-150/30 [a]
76-13-1	Freon 113	ND		67.7	70.6	104	78.4	113	10	61-169/28
591-78-6	2-Hexanone	ND		339	225	66	253	73	12	35-109/34
87-68-3	Hexachlorobutadiene	ND		67.7	71.7	106	79.0	113	10	17-160/37
110-54-3	Hexane	ND		67.7	67.2	99	73.1	105	8	28-170/32
98-82-8	Isopropylbenzene	ND		67.7	72.3	107	76.8	110	6	59-177/29
99-87-6	p-Isopropyltoluene	ND		67.7	71.1	105	79.5	114	11	53-168/31
108-10-1	4-Methyl-2-pentanone	ND		339	234	69	257	74	9	44-99/32
126-98-7	Methacrylonitrile	ND		677	480	71	551	79	14	50-150/30 [a]
74-83-9	Methyl bromide	ND		67.7	83.0	123	86.1	124	4	38-188/27
74-87-3	Methyl chloride	ND		67.7	70.0	103	76.9	110	9	57-160/29
74-88-4	Methyl iodide	ND		67.7	64.1	95	72.1	104	12	52-150/30
80-62-6	Methyl methacrylate	ND		67.7	47.8	71	55.0	79	14	56-106/27
74-95-3	Methylene bromide	ND		67.7	58.5	86	64.2	92	9	56-109/24
75-09-2	Methylene chloride	10.4	J	67.7	73.6	93	80.6	101	9	40-183/34
78-93-3	Methyl ethyl ketone	ND		339	212	63	249	72	16	27-112/32
1634-04-4	Methyl Tert Butyl Ether	ND		67.7	54.9	81	61.9	89	12	53-122/28
91-20-3	Naphthalene	ND		67.7	52.7	78	61.4	88	15	20-116/35
76-01-7	Pentachloroethane	ND		67.7	63.1	93	70.3	101	11	50-150/30 [a]
107-12-0	Propionitrile	ND		677	461	68	522	75	12	50-150/30 [a]
103-65-1	n-Propylbenzene	ND		67.7	69.8	103	80.7	116	14	59-163/31
100-42-5	Styrene	ND		67.7	64.9	96	69.4	100	7	54-130/26
630-20-6	1,1,1,2-Tetrachloroethane	ND		67.7	64.7	96	70.0	101	8	64-131/24
71-55-6	1,1,1-Trichloroethane	ND		67.7	72.2	107	77.2	111	7	70-149/25
79-34-5	1,1,2,2-Tetrachloroethane	ND		67.7	53.0	78	63.1	91	17	45-121/33
79-00-5	1,1,2-Trichloroethane	ND		67.7	55.9	83	60.9	87	9	60-114/25
87-61-6	1,2,3-Trichlorobenzene	ND		67.7	63.4	94	71.4	103	12	24-135/31
96-18-4	1,2,3-Trichloropropane	ND		67.7	53.9	80	62.0	89	14	39-125/32
120-82-1	1,2,4-Trichlorobenzene	ND		67.7	66.7	98	74.9	108	12	23-142/31

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F44735-2MS	G0040964.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2MSD	G0040965.D	1	11/02/06	SH	n/a	n/a	VG1573
F44735-2	G0040962.D	1	11/02/06	SH	n/a	n/a	VG1573

The QC reported here applies to the following samples: Method: SW846 8260B

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5, F44808-6

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	ND		67.7	69.6	103	78.2	112	12	50-161/32
108-67-8	1,3,5-Trimethylbenzene	ND		67.7	70.4	104	79.7	114	12	57-164/31
127-18-4	Tetrachloroethylene	ND		67.7	72.6	107	78.6	113	8	54-154/27
108-88-3	Toluene	ND		67.7	68.0	100	73.2	105	7	62-142/29
79-01-6	Trichloroethylene	ND		67.7	69.6	103	76.2	109	9	59-143/25
75-69-4	Trichlorofluoromethane	ND		67.7	68.0	100	76.2	109	11	59-171/28
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		67.7	52.6	78	62.1	89	17	41-114/31
75-01-4	Vinyl chloride	ND		67.7	55.0	81	62.3	90	12	64-165/27
108-05-4	Vinyl Acetate	ND		339	331	98	361	104	9	13-113/42
	m,p-Xylene	ND		135	140	103	149	107	6	61-146/25
95-47-6	o-Xylene	ND		67.7	67.4	99	72.3	104	7	60-141/25

CAS No.	Surrogate Recoveries	MS	MSD	F44735-2	Limits
1868-53-7	Dibromofluoromethane	101%	99%	99%	78-123%
2037-26-5	Toluene-D8	99%	97%	93%	71-137%
460-00-4	4-Bromofluorobenzene	94%	98%	95%	61-157%
17060-07-0	1,2-Dichloroethane-D4	95%	89%	95%	74-125%

(a) Advisory control limits.

GC/MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-MB	R05761.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic acid	ND	830	330	ug/kg	
95-57-8	2-Chlorophenol	ND	170	33	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	170	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	170	33	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	830	330	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	330	67	ug/kg	
95-48-7	2-Methylphenol	ND	170	33	ug/kg	
	3&4-Methylphenol	ND	170	33	ug/kg	
88-75-5	2-Nitrophenol	ND	170	33	ug/kg	
100-02-7	4-Nitrophenol	ND	830	330	ug/kg	
87-86-5	Pentachlorophenol	ND	830	330	ug/kg	
108-95-2	Phenol	ND	170	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	33	ug/kg	
83-32-9	Acenaphthene	ND	170	33	ug/kg	
208-96-8	Acenaphthylene	ND	170	33	ug/kg	
120-12-7	Anthracene	ND	170	33	ug/kg	
92-87-5	Benzidine	ND	1700	830	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	33	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	33	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	67	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	33	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	330	83	ug/kg	
100-51-6	Benzyl Alcohol	ND	170	33	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	33	ug/kg	
106-47-8	4-Chloroaniline	ND	330	130	ug/kg	
218-01-9	Chrysene	ND	170	33	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	33	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	67	ug/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	170	33	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	33	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	33	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	33	ug/kg	

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-MB	R05761.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	170	33	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	170	67	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	170	67	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	330	170	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	67	ug/kg	
132-64-9	Dibenzofuran	ND	170	33	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	330	83	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	330	170	ug/kg	
84-66-2	Diethyl phthalate	ND	330	83	ug/kg	
131-11-3	Dimethyl phthalate	ND	330	83	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	330	170	ug/kg	
206-44-0	Fluoranthene	ND	170	33	ug/kg	
86-73-7	Fluorene	ND	170	33	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	33	ug/kg	
87-68-3	Hexachlorobutadiene	ND	170	67	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	170	67	ug/kg	
67-72-1	Hexachloroethane	ND	170	67	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	67	ug/kg	
78-59-1	Isophorone	ND	170	33	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	33	ug/kg	
88-74-4	2-Nitroaniline	ND	330	83	ug/kg	
99-09-2	3-Nitroaniline	ND	330	83	ug/kg	
100-01-6	4-Nitroaniline	ND	330	120	ug/kg	
91-20-3	Naphthalene	ND	170	33	ug/kg	
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	67	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	33	ug/kg	
85-01-8	Phenanthrene	ND	170	33	ug/kg	
129-00-0	Pyrene	ND	170	67	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	170	33	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	85%	45-114%
4165-62-2	Phenol-d5	87%	44-124%

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-MB	R05761.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	87%	50-128%
4165-60-0	Nitrobenzene-d5	79%	41-123%
321-60-8	2-Fluorobiphenyl	81%	46-122%
1718-51-0	Terphenyl-d14	80%	45-135%

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-BS	R05760.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
65-85-0	Benzoic acid	3330	1960	59	48-121
95-57-8	2-Chlorophenol	1670	1070	64	61-101
59-50-7	4-Chloro-3-methyl phenol	1670	1180	71	63-107
120-83-2	2,4-Dichlorophenol	1670	1160	70	65-106
105-67-9	2,4-Dimethylphenol	1670	964	58	53-96
51-28-5	2,4-Dinitrophenol	3330	2020	61	42-122
534-52-1	4,6-Dinitro-o-cresol	3330	2400	72	60-122
95-48-7	2-Methylphenol	1670	1020	61	58-98
	3&4-Methylphenol	3330	2220	67	58-99
88-75-5	2-Nitrophenol	1670	1100	66	59-103
100-02-7	4-Nitrophenol	3330	2340	70	66-111
87-86-5	Pentachlorophenol	3330	2610	78	58-120
108-95-2	Phenol	1670	1110	67	59-104
95-95-4	2,4,5-Trichlorophenol	1670	1130	68	65-105
88-06-2	2,4,6-Trichlorophenol	1670	1200	72	66-106
83-32-9	Acenaphthene	1670	1200	72	63-100
208-96-8	Acenaphthylene	1670	1170	70	62-100
120-12-7	Anthracene	1670	1250	75	67-104
56-55-3	Benzo(a)anthracene	1670	1110	67	66-107
50-32-8	Benzo(a)pyrene	1670	1230	74	63-106
205-99-2	Benzo(b)fluoranthene	1670	1270	76	65-110
191-24-2	Benzo(g,h,i)perylene	1670	1170	70	60-107
207-08-9	Benzo(k)fluoranthene	1670	1290	77	66-111
101-55-3	4-Bromophenyl phenyl ether	1670	1230	74	66-108
85-68-7	Butyl benzyl phthalate	1670	1070	64	62-112
100-51-6	Benzyl Alcohol	1670	1130	68	60-103
91-58-7	2-Chloronaphthalene	1670	1130	68	62-98
106-47-8	4-Chloroaniline	1670	828	50	20-87
218-01-9	Chrysene	1670	1130	68	66-107
111-91-1	bis(2-Chloroethoxy)methane	1670	1010	61	54-98
111-44-4	bis(2-Chloroethyl)ether	1670	1040	62	57-103
108-60-1	bis(2-Chloroisopropyl)ether	1670	966	58	48-102
7005-72-3	4-Chlorophenyl phenyl ether	1670	1170	70	65-106
95-50-1	1,2-Dichlorobenzene	1670	1020	61	50-97
541-73-1	1,3-Dichlorobenzene	1670	960	58	46-94
106-46-7	1,4-Dichlorobenzene	1670	997	60	47-95

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-BS	R05760.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
121-14-2	2,4-Dinitrotoluene	1670	1170	70	60-107
606-20-2	2,6-Dinitrotoluene	1670	1110	67	59-103
91-94-1	3,3'-Dichlorobenzidine	1670	785	47	32-91
53-70-3	Dibenzo(a,h)anthracene	1670	1210	73	59-108
132-64-9	Dibenzofuran	1670	1150	69	64-103
84-74-2	Di-n-butyl phthalate	1670	1150	69	64-109
117-84-0	Di-n-octyl phthalate	1670	1230	74	64-123
84-66-2	Diethyl phthalate	1670	1180	71	61-112
131-11-3	Dimethyl phthalate	1670	1170	70	63-107
117-81-7	bis(2-Ethylhexyl)phthalate	1670	1040	62	62-114
206-44-0	Fluoranthene	1670	1260	76	64-110
86-73-7	Fluorene	1670	1200	72	63-102
118-74-1	Hexachlorobenzene	1670	1230	74	64-104
87-68-3	Hexachlorobutadiene	1670	1010	61	56-99
77-47-4	Hexachlorocyclopentadiene	1670	1100	66	32-93
67-72-1	Hexachloroethane	1670	945	57	47-96
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1200	72	60-110
78-59-1	Isophorone	1670	1140	68	60-100
91-57-6	2-Methylnaphthalene	1670	1150	69	60-104
88-74-4	2-Nitroaniline	1670	1210	73	61-105
99-09-2	3-Nitroaniline	1670	819	49	34-84
100-01-6	4-Nitroaniline	1670	1080	65	53-105
91-20-3	Naphthalene	1670	1080	65	58-96
98-95-3	Nitrobenzene	1670	1080	65	58-98
621-64-7	N-Nitroso-di-n-propylamine	1670	1080	65	54-95
86-30-6	N-Nitrosodiphenylamine	1670	1180	71	66-106
85-01-8	Phenanthrene	1670	1250	75	66-105
129-00-0	Pyrene	1670	1130	68	66-109
120-82-1	1,2,4-Trichlorobenzene	1670	1060	64	58-97

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	67%	45-114%
4165-62-2	Phenol-d5	69%	44-124%
118-79-6	2,4,6-Tribromophenol	76%	50-128%

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-BS	R05760.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	64%	41-123%
321-60-8	2-Fluorobiphenyl	67%	46-122%
1718-51-0	Terphenyl-d14	67%	45-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-MS	R05766.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
OP18412-MSD	R05767.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
F44735-2	R05765.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic acid	ND		4810	1930	40	1170	24	49*	10-124/35
95-57-8	2-Chlorophenol	ND		2410	1630	68	1630	67	0	46-99/28
59-50-7	4-Chloro-3-methyl phenol	ND		2410	1710	71	1670	69	2	51-106/24
120-83-2	2,4-Dichlorophenol	ND		2410	1710	71	1690	70	1	51-105/24
105-67-9	2,4-Dimethylphenol	ND		2410	1420	59	1380	57	3	47-95/27
51-28-5	2,4-Dinitrophenol	ND		4810	1530	32	1040	21	38	10-114/50
534-52-1	4,6-Dinitro-o-cresol	ND		4810	2360	49	1700	35	33	11-120/39
95-48-7	2-Methylphenol	ND		2410	1530	64	1550	64	1	48-96/26
	3&4-Methylphenol	ND		4810	3270	68	3260	67	0	50-95/26
88-75-5	2-Nitrophenol	ND		2410	1640	68	1640	68	0	36-109/29
100-02-7	4-Nitrophenol	ND		4810	3500	73	3200	66	9	50-107/25
87-86-5	Pentachlorophenol	ND		4810	3700	77	3200	66	14	45-118/30
108-95-2	Phenol	ND		2410	1680	70	1700	70	1	44-105/27
95-95-4	2,4,5-Trichlorophenol	ND		2410	1710	71	1650	68	4	58-101/23
88-06-2	2,4,6-Trichlorophenol	ND		2410	1730	72	1680	69	3	56-103/23
83-32-9	Acenaphthene	ND		2410	1730	72	1720	71	1	47-106/28
208-96-8	Acenaphthylene	ND		2410	1710	71	1690	70	1	48-102/24
120-12-7	Anthracene	ND		2410	1820	76	1780	73	2	52-108/26
92-87-5	Benzidine	ND		2410	ND	0*	ND	0*	nc	10-151/50
56-55-3	Benzo(a)anthracene	ND		2410	1600	67	1540	64	4	54-106/26
50-32-8	Benzo(a)pyrene	ND		2410	1800	75	1760	73	2	53-104/25
205-99-2	Benzo(b)fluoranthene	ND		2410	1850	77	1820	75	2	53-109/27
191-24-2	Benzo(g,h,i)perylene	ND		2410	1670	69	1640	68	2	53-104/28
207-08-9	Benzo(k)fluoranthene	ND		2410	1820	76	1780	73	2	55-107/29
101-55-3	4-Bromophenyl phenyl ether	ND		2410	1780	74	1730	71	3	59-102/23
85-68-7	Butyl benzyl phthalate	ND		2410	1520	63	1470	61	3	58-105/23
100-51-6	Benzyl Alcohol	ND		2410	1760	73	1810	75	3	52-97/30
91-58-7	2-Chloronaphthalene	ND		2410	1670	69	1650	68	1	54-92/24
106-47-8	4-Chloroaniline	ND		2410	1240	52	1080	45	14	21-92/35
218-01-9	Chrysene	ND		2410	1630	68	1570	65	4	54-108/26
111-91-1	bis(2-Chloroethoxy)methane	ND		2410	1480	62	1500	62	1	44-94/27
111-44-4	bis(2-Chloroethyl)ether	ND		2410	1600	67	1580	65	1	40-104/30
108-60-1	bis(2-Chloroisopropyl)ether	ND		2410	1460	61	1450	60	1	40-91/29
7005-72-3	4-Chlorophenyl phenyl ether	ND		2410	1720	72	1700	70	1	57-101/22
95-50-1	1,2-Dichlorobenzene	ND		2410	1550	64	1580	65	2	36-88/34
541-73-1	1,3-Dichlorobenzene	ND		2410	1450	60	1510	62	4	30-85/33

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-MS	R05766.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
OP18412-MSD	R05767.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
F44735-2	R05765.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	F44735-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-46-7	1,4-Dichlorobenzene	ND		2410	1470	61	1520	63	3	30-87/33
121-14-2	2,4-Dinitrotoluene	ND		2410	1760	73	1700	70	3	46-105/28
606-20-2	2,6-Dinitrotoluene	ND		2410	1690	70	1600	66	5	46-102/26
91-94-1	3,3'-Dichlorobenzidine	ND		2410	1250	52	1140	47	9	22-104/35
53-70-3	Dibenzo(a,h)anthracene	ND		2410	1720	72	1690	70	2	53-103/26
132-64-9	Dibenzofuran	ND		2410	1690	70	1690	70	0	53-103/27
84-74-2	Di-n-butyl phthalate	ND		2410	1670	69	1640	68	2	55-104/22
117-84-0	Di-n-octyl phthalate	ND		2410	1760	73	1750	72	1	61-115/24
84-66-2	Diethyl phthalate	ND		2410	1750	73	1690	70	3	54-104/22
131-11-3	Dimethyl phthalate	ND		2410	1720	72	1670	69	3	55-100/22
117-81-7	bis(2-Ethylhexyl)phthalate	ND		2410	1480	62	1480	61	0	56-110/25
206-44-0	Fluoranthene	ND		2410	1850	77	1800	74	3	52-109/28
86-73-7	Fluorene	ND		2410	1770	74	1720	71	3	55-99/26
118-74-1	Hexachlorobenzene	ND		2410	1740	72	1700	70	2	57-99/23
87-68-3	Hexachlorobutadiene	ND		2410	1520	63	1530	63	1	36-97/35
77-47-4	Hexachlorocyclopentadiene	ND		2410	1580	66	1570	65	1	10-88/50
67-72-1	Hexachloroethane	ND		2410	1410	59	1450	60	3	22-90/41
193-39-5	Indeno(1,2,3-cd)pyrene	ND		2410	1720	72	1650	68	4	53-108/29
78-59-1	Isophorone	ND		2410	1660	69	1680	69	1	46-99/26
91-57-6	2-Methylnaphthalene	ND		2410	1690	70	1740	72	3	45-104/28
88-74-4	2-Nitroaniline	ND		2410	1730	72	1750	72	1	51-104/23
99-09-2	3-Nitroaniline	ND		2410	1300	54	1200	50	8	30-94/31
100-01-6	4-Nitroaniline	ND		2410	1660	69	1550	64	7	39-100/27
91-20-3	Naphthalene	ND		2410	1630	68	1610	66	1	44-94/31
98-95-3	Nitrobenzene	ND		2410	1620	67	1610	66	1	43-97/29
621-64-7	N-Nitroso-di-n-propylamine	ND		2410	1620	67	1620	67	0	40-98/27
86-30-6	N-Nitrosodiphenylamine	ND		2410	1690	70	1650	68	2	55-104/22
85-01-8	Phenanthrene	ND		2410	1830	76	1770	73	3	53-106/26
129-00-0	Pyrene	ND		2410	1630	68	1550	64	5	55-111/30
120-82-1	1,2,4-Trichlorobenzene	ND		2410	1570	65	1600	66	2	41-95/32

CAS No.	Surrogate Recoveries	MS	MSD	F44735-2	Limits
367-12-4	2-Fluorophenol	73%	72%	68%	45-114%
4165-62-2	Phenol-d5	73%	73%	70%	44-124%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18412-MS	R05766.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
OP18412-MSD	R05767.D	1	11/06/06	NJ	11/06/06	OP18412	SR271
F44735-2	R05765.D	1	11/06/06	NJ	11/06/06	OP18412	SR271

The QC reported here applies to the following samples: Method: SW846 8270C

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Surrogate Recoveries	MS	MSD	F44735-2	Limits
118-79-6	2,4,6-Tribromophenol	78%	75%	73%	50-128%
4165-60-0	Nitrobenzene-d5	68%	66%	64%	41-123%
321-60-8	2-Fluorobiphenyl	68%	66%	64%	46-122%
1718-51-0	Terphenyl-d14	66%	64%	67%	45-135%

GC Semi-volatiles

QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-MB	TT03305.D	1	11/12/06	VS	11/09/06	OP18466	GTT117

The QC reported here applies to the following samples: Method: SW846 8081A

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.7	0.67	ug/kg	
319-84-6	alpha-BHC	ND	1.7	0.67	ug/kg	
319-85-7	beta-BHC	ND	1.7	0.67	ug/kg	
319-86-8	delta-BHC	ND	1.7	0.67	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.7	0.67	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.7	0.67	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.7	0.67	ug/kg	
60-57-1	Dieldrin	ND	1.7	0.67	ug/kg	
72-54-8	4,4'-DDD	ND	3.3	0.67	ug/kg	
72-55-9	4,4'-DDE	ND	3.3	0.67	ug/kg	
50-29-3	4,4'-DDT	ND	3.3	1.0	ug/kg	
72-20-8	Endrin	ND	3.3	0.67	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.3	0.67	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.3	1.3	ug/kg	
53494-70-5	Endrin ketone	ND	3.3	0.67	ug/kg	
959-98-8	Endosulfan-I	ND	1.7	0.67	ug/kg	
33213-65-9	Endosulfan-II	ND	3.3	0.67	ug/kg	
76-44-8	Heptachlor	ND	1.7	0.67	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.7	0.67	ug/kg	
72-43-5	Methoxychlor	ND	3.3	1.3	ug/kg	
8001-35-2	Toxaphene	ND	83	42	ug/kg	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	78%	60-142%
2051-24-3	Decachlorobiphenyl	87%	61-153%

Method Blank Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-MB	TT03349.D	1	11/13/06	VS	11/09/06	OP18466	GTT118

The QC reported here applies to the following samples: Method: SW846 8081A

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

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CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.7	0.67	ug/kg	
319-84-6	alpha-BHC	ND	1.7	0.67	ug/kg	
319-85-7	beta-BHC	ND	1.7	0.67	ug/kg	
319-86-8	delta-BHC	ND	1.7	0.67	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.7	0.67	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.7	0.67	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.7	0.67	ug/kg	
60-57-1	Dieldrin	ND	1.7	0.67	ug/kg	
72-54-8	4,4'-DDD	ND	3.3	0.67	ug/kg	
72-55-9	4,4'-DDE	ND	3.3	0.67	ug/kg	
50-29-3	4,4'-DDT	ND	3.3	1.0	ug/kg	
72-20-8	Endrin	ND	3.3	0.67	ug/kg	
1031-07-8	Endosulfan sulfate	ND	3.3	0.67	ug/kg	
7421-93-4	Endrin aldehyde	ND	3.3	1.3	ug/kg	
53494-70-5	Endrin ketone	ND	3.3	0.67	ug/kg	
959-98-8	Endosulfan-I	ND	1.7	0.67	ug/kg	
33213-65-9	Endosulfan-II	ND	3.3	0.67	ug/kg	
76-44-8	Heptachlor	ND	1.7	0.67	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.7	0.67	ug/kg	
72-43-5	Methoxychlor	ND	3.3	1.3	ug/kg	
8001-35-2	Toxaphene	ND	83	42	ug/kg	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	82%	60-142%
2051-24-3	Decachlorobiphenyl	90%	61-153%

Blank Spike Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-BS	TT03304.D	1	11/12/06	VS	11/09/06	OP18466	GTT117

The QC reported here applies to the following samples: Method: SW846 8081A

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
309-00-2	Aldrin	16.7	15.8	95	67-130
319-84-6	alpha-BHC	16.7	15.6	94	70-135
319-85-7	beta-BHC	16.7	15.6	94	75-130
319-86-8	delta-BHC	16.7	11.4	68	53-126
58-89-9	gamma-BHC (Lindane)	16.7	15.5	93	73-136
5103-71-9	alpha-Chlordane	16.7	15.9	95	78-129
5103-74-2	gamma-Chlordane	16.7	16.5	99	78-132
60-57-1	Dieldrin	16.7	16.1	97	79-136
72-54-8	4,4'-DDD	16.7	16.3	98	76-142
72-55-9	4,4'-DDE	16.7	16.4	98	78-143
50-29-3	4,4'-DDT	16.7	16.7	100	84-141
72-20-8	Endrin	16.7	17.3	104	79-138
1031-07-8	Endosulfan sulfate	16.7	15.0	90	78-128
7421-93-4	Endrin aldehyde	16.7	13.3	80	5-103
53494-70-5	Endrin ketone	16.7	15.5	93	79-129
959-98-8	Endosulfan-I	16.7	15.3	92	79-128
33213-65-9	Endosulfan-II	16.7	15.7	94	78-132
76-44-8	Heptachlor	16.7	15.6	94	71-136
1024-57-3	Heptachlor epoxide	16.7	15.5	93	76-133
72-43-5	Methoxychlor	16.7	15.5	93	81-137

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	88%	60-142%
2051-24-3	Decachlorobiphenyl	91%	61-153%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F44808
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18466-MS	TT03316.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
OP18466-MSD	TT03317.D	1	11/12/06	VS	11/09/06	OP18466	GTT117
F44814-2	TT03312.D	1	11/12/06	VS	11/09/06	OP18466	GTT117

The QC reported here applies to the following samples: Method: SW846 8081A

F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

7.3 7

CAS No.	Compound	F44814-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
309-00-2	Aldrin	ND		20.1	14.5	72	15.8	78	9	57-142/23
319-84-6	alpha-BHC	ND		20.1	16.1	80	16.6	82	3	53-147/24
319-85-7	beta-BHC	ND		20.1	16.8	84	17.1	85	2	58-152/18
319-86-8	delta-BHC	ND		20.1	12.3	61	12.7	63	3	37-148/23
58-89-9	gamma-BHC (Lindane)	ND		20.1	16.6	83	17.5	87	5	59-146/21
5103-71-9	alpha-Chlordane	ND		20.1	16.6	83	16.8	83	1	59-147/21
5103-74-2	gamma-Chlordane	ND		20.1	17.3	86	17.6	87	2	55-152/20
60-57-1	Dieldrin	ND		20.1	17.1	85	17.2	85	1	59-142/20
72-54-8	4,4'-DDD	ND		20.1	17.3	86	17.5	87	1	56-167/25
72-55-9	4,4'-DDE	ND		20.1	17.8	89	17.8	88	0	58-158/21
50-29-3	4,4'-DDT	ND		20.1	19.0	95	18.4	91	3	60-157/25
72-20-8	Endrin	ND		20.1	18.1	90	18.4	91	2	59-153/21
1031-07-8	Endosulfan sulfate	ND		20.1	16.0	80	16.6	82	4	52-151/24
7421-93-4	Endrin aldehyde	ND		20.1	14.5	72	14.7	73	1	5-106/50
53494-70-5	Endrin ketone	ND		20.1	16.5	82	16.8	83	2	44-163/22
959-98-8	Endosulfan-I	ND		20.1	15.8	79	16.6	82	5	57-145/20
33213-65-9	Endosulfan-II	ND		20.1	16.5	82	17.2	85	4	52-146/22
76-44-8	Heptachlor	ND		20.1	16.9	84	17.4	86	3	61-145/24
1024-57-3	Heptachlor epoxide	ND		20.1	16.6	83	16.6	82	0	58-147/20
72-43-5	Methoxychlor	ND		20.1	16.7	83	17.4	86	4	58-154/25

CAS No.	Surrogate Recoveries	MS	MSD	F44814-2	Limits
877-09-8	Tetrachloro-m-xylene	80%	83%	91%	60-142%
2051-24-3	Decachlorobiphenyl	82%	83%	90%	61-153%

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10605
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06

Metal	RL	IDL	MB raw	final
Mercury	0.083	.0067	0.0028	<0.083

Associated samples MP10605: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.1

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10605
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06 10/31/06

Metal	F44776-34 Original	DUP	RPD	QC Limits	F44776-34 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.050	0.047	6.2	0-20	0.050	0.32	0.28	95.2	80-120

Associated samples MP10605: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10605
Matrix Type: SOLID

Methods: SW846 7471A
Units: mg/kg

Prep Date: 10/31/06

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.25	0.25	100.0	80-120

Associated samples MP10605: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.3 8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10630
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/03/06

Metal	RL	IDL	MB raw	final
Aluminum	20	1.8		
Antimony	5.9	.33	anr	
Arsenic	0.78	.27	-0.094	<0.78
Barium	20	.039	0.024	<20
Beryllium	0.49	.039	anr	
Cadmium	0.39	.02	0.0059	<0.39
Calcium	490	4.1		
Chromium	0.98	.059	0.014	<0.98
Cobalt	4.9	.059		
Copper	2.5	.088	anr	
Iron	9.8	1.2		
Lead	9.8	.17	0.098	<9.8
Magnesium	490	.42		
Manganese	1.5	.059		
Molybdenum	4.9	.13		
Nickel	3.9	.078	anr	
Potassium	980	.98		
Selenium	9.8	.2	0.30	<9.8
Silver	0.98	.088	0.048	<0.98
Sodium	980	49		
Thallium	2.0	.23	anr	
Tin	4.9	.3		
Vanadium	4.9	.059		
Zinc	2.0	.13	anr	

Associated samples MP10630: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10630
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date:			11/03/06					11/03/06	
Metal	F44808-1 Original	DUP	RPD	QC Limits	F44808-1 Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum									
Antimony	anr								
Arsenic	2.4	2.7	11.8	0-20	2.4	226	230	97.0	80-120
Barium	59.9	61.7	3.0	0-20	59.9	283	230	96.8	80-120
Beryllium	anr								
Cadmium	0.031	0.029	6.7	0-20	0.031	5.4	5.8	93.2	80-120
Calcium									
Chromium	5.5	5.5	0.0	0-20	5.5	27.5	23	95.5	80-120
Cobalt									
Copper	anr								
Iron									
Lead	2.8	2.9	3.5	0-20	2.8	56.8	57.6	93.7	80-120
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Potassium									
Selenium	0.0	0.0	NC	0-20	0.0	206	230	89.4	80-120
Silver	0.0	0.0	NC	0-20	0.0	5.8	5.8	100.7	80-120
Sodium									
Thallium	anr								
Tin									
Vanadium									
Zinc	anr								

Associated samples MP10630: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.2.2 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10630
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/03/06

Metal	F44808-1 Original	MSD	Spikelot MPFLICP1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	2.4	225	230	96.6	0.4	20
Barium	59.9	287	230	98.6	1.4	20
Beryllium	anr					
Cadmium	0.031	5.5	5.8	94.9	1.8	20
Calcium						
Chromium	5.5	27.8	23	96.8	1.1	20
Cobalt						
Copper	anr					
Iron						
Lead	2.8	57.6	57.6	95.1	1.4	20
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Potassium						
Selenium	0.0	206	230	89.4	0.0	20
Silver	0.0	5.9	5.8	102.4	1.7	20
Sodium						
Thallium	anr					
Tin						
Vanadium						
Zinc	anr					

Associated samples MP10630: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.2.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10630
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/03/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	196	200	98.0	80-120
Barium	206	200	103.0	80-120
Beryllium	anr			
Cadmium	5.1	5	102.0	80-120
Calcium				
Chromium	21.3	20	106.5	80-120
Cobalt				
Copper	anr			
Iron				
Lead	50.5	50	101.0	80-120
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Potassium				
Selenium	182	200	91.0	80-120
Silver	5.0	5	100.0	80-120
Sodium				
Thallium	anr			
Tin				
Vanadium				
Zinc	anr			

Associated samples MP10630: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F44808
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10630
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/03/06

Metal	F44808-1 Original	SDL 1:5	RPD	QC Limits
Aluminum				
Antimony	anr			
Arsenic	20.8	36.9	77.8 (a)	0-10
Barium	510	516	1.3	0-10
Beryllium	anr			
Cadmium	0.260	0.00	100.0(a)	0-10
Calcium				
Chromium	46.7	49.9	6.9	0-10
Cobalt				
Copper	anr			
Iron				
Lead	24.0	25.4	6.0	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Potassium				
Selenium	0.00	0.00	NC	0-10
Silver	0.00	0.00	NC	0-10
Sodium				
Thallium	anr			
Tin				
Vanadium				
Zinc	anr			

Associated samples MP10630: F44808-1, F44808-2, F44808-3, F44808-4, F44808-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

GROUNDWATER

F45254

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

12/07/06

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F45254

Sampling Date: 11/13/06

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Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F45254

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F45254-1	11/13/06	11:40 TL	11/15/06	AQ	Ground Water	SD-08-MW08-01
F45254-2	11/13/06	09:40 TL	11/15/06	AQ	Ground Water	SD-08-MW08-05
F45254-3	11/13/06	09:40 TL	11/15/06	AQ	Trip Blank Water	TRIP BLANK
F45254-4	11/13/06	11:00 TL	11/15/06	AQ	Ground Water	S10-MW01
F45254-5	11/13/06	11:00 TL	11/15/06	AQ	Trip Blank Water	TRIP BLANK

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F45254

Site: HOLMN **Report Date** 12/7/2006 10:02:30

3 Samples, 2 Trip Blanks were collected on 11/13/2006 and received at Accutest on 11/15/2006 properly preserved, at 2 Deg. C and intact. These Samples received an Accutest job number of F45254. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VJ1086

Sample(s) F45254-1MS, F45254-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Blank Spike Recovery(s) for Chlorobenzene, cis-1,3-Dichloropropene, Methylene bromide are outside control limits. Biased high, not affected data integrity - no hits in the samples detected.

Matrix Spike Recovery(s) for 2-Chloroethyl vinyl ether, Acrolein, cis-1,3-Dichloropropene, Methyl ethyl ketone, Methyl methacrylate, Methylene bromide, Naphthalene, Trichloroethylene are outside control limits.

Matrix Spike Duplicate Recovery(s) for 2-Chloroethyl vinyl ether, cis-1,3-Dichloropropene, Methyl ethyl ketone, Trichloroethylene are outside control limits. For method performance in clean matrix refer to Blank Spike.

Matrix: AQ **Batch ID:** VJ1087

Sample(s) F45309-5MS, F45309-5MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

The following samples were run outside of holding time for method SW846 8260B: F45254-1. Sample re-analyzed beyond hold time; reported results are considered minimum values.

Extractables by GCMS By Method SW846 8270C

Matrix: AQ **Batch ID:** OP18556

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45254-2MS, F45254-2MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2-Chlorophenol, 2-Methylphenol, 3&4-Methylphenol, 4-Chloro-3-methyl phenol, 4-Nitrophenol, Phenol are outside control limits. MS/MSD passed control criteria, SW-846 8000 requirements are met.

Sample(s) F45254-1, F45254-4 have surrogates outside control limits. Probable cause due to matrix interference.

F45254-4: Confirmed ND by re-extraction and reanalysis beyond holdtime.

F45254-2: Confirmed by re-extraction and reanalysis beyond holdtime.

F45254-1: Confirmed ND by re-extraction and reanalysis beyond holdtime.

Matrix: AQ **Batch ID:** OP18655

The following samples were extracted outside of holding time for method SW846 8270C: F45254-1, F45254-2, F45254-4

Sample(s) F45254-1, F45254-4 have surrogates outside control limits. Probable cause due to matrix interference.

F45254-1: Confirmation run.

F45254-2: Confirmation run.

F45254-4: Confirmation run.

Extractables by GC By Method SW846 8081A

Matrix: AQ **Batch ID:** OP18576

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45339-1MS, F45339-1MSD were used as the QC samples indicated.

Matrix Spike Duplicate Recovery(s) for 4,4'-DDE, 4,4'-DDT, Methoxychlor are outside control limits. Probable cause due to matrix interference. See Blank Spike.

RPD(s) for MSD for Endrin aldehyde are outside control limits for sample OP18576-MSD. Probable cause due to sample homogeneity.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP10712

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45254-1DUP, F45254-1MS, F45254-1SDL were used as the QC samples for metals.

RPD(s) for Serial Dilution for Arsenic, Barium are outside control limits for sample MP10712-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

F45254-4 for Selenium: Elevated reporting limit(s) due to matrix interference.

F45254-1 for Selenium: Elevated reporting limit(s) due to matrix interference.

F45254-2 for Selenium: Elevated reporting limit(s) due to matrix interference.

Metals By Method EPA 245.1

Matrix: AQ **Batch ID:** MP10717

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45254-1MS, F45254-1DUP were used as the QC samples for metals.

RPD(s) for Duplicate for Mercury are outside control limits for sample MP10717-D1. RPD acceptable due to low duplicate and sample concentrations.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: December 07, 2006

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Report of Analysis

3.1 3

Client Sample ID:	[redacted]		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026371.D	1	11/27/06	AB	n/a	n/a	VJ1086
Run #2 [a]	J026398.D	2	11/28/06	AB	n/a	n/a	VJ1087

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	0.57	1.0	0.50	ug/l	J
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	0.57	1.0	0.50	ug/l	J
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	134 [b]	2.0	1.0	ug/l	
78-87-5	1,2-Dichloropropane	10.3	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	0.52	1.0	0.50	ug/l	J
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	3.9	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%	108%	86-115%
17060-07-0	1,2-Dichloroethane-D4	105%	108%	73-126%
2037-26-5	Toluene-D8	89%	90%	86-112%
460-00-4	4-Bromofluorobenzene	96%	102%	83-119%

(a) Sample re-analyzed beyond hold time; reported results are considered minimum values.
(b) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R05982.D	1	11/22/06	ME	11/17/06	OP18556	SR281
Run #2 [b]	L035022.D	1	11/30/06	NJ	11/28/06	OP18655	SL1795

	Initial Volume	Final Volume
Run #1	1010 ml	1.0 ml
Run #2	1020 ml	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	9.9	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	9.9	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.9	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	9.9	ug/l	
87-86-5	Pentachlorophenol	ND	25	9.9	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	0.99	ug/l	
208-96-8	Acenaphthylene	ND	5.0	0.99	ug/l	
120-12-7	Anthracene	ND	5.0	0.99	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	0.99	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	0.99	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.99	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	0.99	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.99	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.99	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.99	ug/l	
106-47-8	4-Chloroaniline	ND	9.9	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	0.99	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.99	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.99	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.99	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.99	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.99	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.99	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	9.9	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.99	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	0.99	ug/l	
86-73-7	Fluorene	ND	5.0	0.99	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.99	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	0.99	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.99	ug/l	
88-74-4	2-Nitroaniline	ND	9.9	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	9.9	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	9.9	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	0.99	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.99	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.99	ug/l	
129-00-0	Pyrene	ND	5.0	0.99	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.99	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	17%	25%	19-90%
4165-62-2	Phenol-d5	13%	18%	10-68%
118-79-6	2,4,6-Tribromophenol	59%	76%	36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	47%	62%	49-119%
321-60-8	2-Fluorobiphenyl	47%	63%	45-118%
1718-51-0	Terphenyl-d14	34%	56%	46-135%

(a) Confirmed ND by re-extraction and reanalysis beyond holdtime.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03826.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.048	0.019	ug/l	
319-84-6	alpha-BHC	ND	0.048	0.014	ug/l	
319-85-7	beta-BHC	ND	0.048	0.019	ug/l	
319-86-8	delta-BHC	ND	0.048	0.019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.048	0.014	ug/l	
5103-71-9	alpha-Chlordane	ND	0.048	0.014	ug/l	
5103-74-2	gamma-Chlordane	ND	0.048	0.014	ug/l	
60-57-1	Dieldrin	ND	0.048	0.014	ug/l	
72-54-8	4,4'-DDD	ND	0.096	0.019	ug/l	
72-55-9	4,4'-DDE	ND	0.096	0.019	ug/l	
50-29-3	4,4'-DDT	ND	0.096	0.019	ug/l	
72-20-8	Endrin	ND	0.096	0.038	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.096	0.019	ug/l	
7421-93-4	Endrin aldehyde	ND	0.096	0.038	ug/l	
53494-70-5	Endrin ketone	ND	0.096	0.019	ug/l	
959-98-8	Endosulfan-I	ND	0.048	0.014	ug/l	
33213-65-9	Endosulfan-II	ND	0.096	0.019	ug/l	
76-44-8	Heptachlor	ND	0.048	0.019	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.048	0.014	ug/l	
72-43-5	Methoxychlor	ND	0.096	0.038	ug/l	
8001-35-2	Toxaphene	ND	2.4	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	82%		60-138%
2051-24-3	Decachlorobiphenyl	77%		31-148%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-01		
Lab Sample ID:	F45254-1	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	23.4	10	2.8	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Barium	15.8 J	200	0.40	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Cadmium	0.30 U	5.0	0.30	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Chromium	0.60 U	10	0.60	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Lead	1.7 U	5.0	1.7	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Mercury	0.21 J	1.0	0.10	ug/l	1	11/17/06	11/17/06	MS	EPA 245.1 [2]	EPA 245.1 [4]
Selenium [a]	56 U	100	56	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Silver	0.90 U	10	0.90	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA5351
(2) Instrument QC Batch: MA5357
(3) Prep QC Batch: MP10712
(4) Prep QC Batch: MP10717

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026374.D	1	11/27/06	AB	n/a	n/a	VJ1086
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	2.8	5.0	2.5	ug/l	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		86-115%
17060-07-0	1,2-Dichloroethane-D4	105%		73-126%
2037-26-5	Toluene-D8	91%		86-112%
460-00-4	4-Bromofluorobenzene	97%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R05971.D	1	11/22/06	ME	11/17/06	OP18556	SR280
Run #2 [b]	L035023.D	1	11/30/06	NJ	11/28/06	OP18655	SL1795

	Initial Volume	Final Volume
Run #1	1010 ml	1.0 ml
Run #2	1000 ml	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	9.9	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	9.9	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.9	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	9.9	ug/l	
87-86-5	Pentachlorophenol	ND	25	9.9	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	0.99	ug/l	
208-96-8	Acenaphthylene	ND	5.0	0.99	ug/l	
120-12-7	Anthracene	ND	5.0	0.99	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	0.99	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	0.99	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.99	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	0.99	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.99	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.99	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.99	ug/l	
106-47-8	4-Chloroaniline	ND	9.9	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	0.99	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.99	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.99	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.99	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.99	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.99	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.99	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	9.9	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.99	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	3.6	5.0	2.5	ug/l	J
206-44-0	Fluoranthene	ND	5.0	0.99	ug/l	
86-73-7	Fluorene	ND	5.0	0.99	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.99	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	0.99	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.99	ug/l	
88-74-4	2-Nitroaniline	ND	9.9	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	9.9	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	9.9	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	0.99	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.99	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.99	ug/l	
129-00-0	Pyrene	ND	5.0	0.99	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.99	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	21%	27%	19-90%
4165-62-2	Phenol-d5	14%	17%	10-68%
118-79-6	2,4,6-Tribromophenol	86%	76%	36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%	68%	49-119%
321-60-8	2-Fluorobiphenyl	70%	66%	45-118%
1718-51-0	Terphenyl-d14	65%	62%	46-135%

(a) Confirmed by re-extraction and reanalysis beyond holdtime.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03835.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.049	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.049	0.015	ug/l	
319-85-7	beta-BHC	ND	0.049	0.020	ug/l	
319-86-8	delta-BHC	ND	0.049	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.049	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.049	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.049	0.015	ug/l	
60-57-1	Dieldrin	ND	0.049	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.098	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.098	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.098	0.020	ug/l	
72-20-8	Endrin	ND	0.098	0.039	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.098	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.098	0.039	ug/l	
53494-70-5	Endrin ketone	ND	0.098	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.049	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.098	0.020	ug/l	
76-44-8	Heptachlor	ND	0.049	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.049	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.098	0.039	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	87%		60-138%
2051-24-3	Decachlorobiphenyl	57%		31-148%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD-08-MW08-05		
Lab Sample ID:	F45254-2	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	4.5 J	10	2.8	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Barium	48.3 J	200	0.40	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Cadmium	0.30 U	5.0	0.30	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Chromium	0.60 U	10	0.60	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Lead	2.9 J	5.0	1.7	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Mercury	0.15 J	1.0	0.10	ug/l	1	11/17/06	11/17/06	MS	EPA 245.1 [2]	EPA 245.1 [4]
Selenium [a]	110 U	200	110	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Silver	0.90 U	10	0.90	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA5351
(2) Instrument QC Batch: MA5357
(3) Prep QC Batch: MP10712
(4) Prep QC Batch: MP10717

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45254-3	Date Sampled:	11/13/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026375.D	1	11/27/06	AB	n/a	n/a	VJ1086
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45254-3	Date Sampled:	11/13/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45254-3	Date Sampled:	11/13/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		86-115%
17060-07-0	1,2-Dichloroethane-D4	106%		73-126%
2037-26-5	Toluene-D8	90%		86-112%
460-00-4	4-Bromofluorobenzene	100%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026376.D	1	11/27/06	AB	n/a	n/a	VJ1086
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.5	25	5.0	ug/l	J
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	3.0	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	112%		86-115%
17060-07-0	1,2-Dichloroethane-D4	110%		73-126%
2037-26-5	Toluene-D8	90%		86-112%
460-00-4	4-Bromofluorobenzene	102%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R05974.D	1	11/22/06	ME	11/17/06	OP18556	SR280
Run #2 [b]	L035024.D	1	11/30/06	NJ	11/28/06	OP18655	SL1795

	Initial Volume	Final Volume
Run #1	1010 ml	1.0 ml
Run #2	1020 ml	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	9.9	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	9.9	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.9	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	9.9	ug/l	
87-86-5	Pentachlorophenol	ND	25	9.9	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	0.99	ug/l	
208-96-8	Acenaphthylene	ND	5.0	0.99	ug/l	
120-12-7	Anthracene	ND	5.0	0.99	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	0.99	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	0.99	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.99	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	0.99	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.99	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.99	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.99	ug/l	
106-47-8	4-Chloroaniline	ND	9.9	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	0.99	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.99	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.99	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.99	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.99	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.99	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.99	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	9.9	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.99	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	0.99	ug/l	
86-73-7	Fluorene	ND	5.0	0.99	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.99	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	0.99	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.99	ug/l	
88-74-4	2-Nitroaniline	ND	9.9	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	9.9	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	9.9	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	0.99	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.99	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.99	ug/l	
129-00-0	Pyrene	ND	5.0	0.99	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.99	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	13%	24%	19-90%
4165-62-2	Phenol-d5	13%	16%	10-68%
118-79-6	2,4,6-Tribromophenol	45%	62%	36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	46%	57%	49-119%
321-60-8	2-Fluorobiphenyl	44%	56%	45-118%
1718-51-0	Terphenyl-d14	35%	49%	46-135%

(a) Confirmed ND by re-extraction and reanalysis beyond holdtime.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03828.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.049	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.049	0.015	ug/l	
319-85-7	beta-BHC	ND	0.049	0.020	ug/l	
319-86-8	delta-BHC	ND	0.049	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.049	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.049	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.049	0.015	ug/l	
60-57-1	Dieldrin	ND	0.049	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.098	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.098	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.098	0.020	ug/l	
72-20-8	Endrin	ND	0.098	0.039	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.098	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.098	0.039	ug/l	
53494-70-5	Endrin ketone	ND	0.098	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.049	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.098	0.020	ug/l	
76-44-8	Heptachlor	ND	0.049	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.049	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.098	0.039	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		60-138%
2051-24-3	Decachlorobiphenyl	58%		31-148%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S10-MW01		
Lab Sample ID:	F45254-4	Date Sampled:	11/13/06
Matrix:	AQ - Ground Water	Date Received:	11/15/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.6 J	10	2.8	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Barium	20.8 J	200	0.40	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Cadmium	1.6 J	5.0	0.30	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Chromium	3.8 J	10	0.60	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Lead	1.7 U	5.0	1.7	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Mercury	0.22 J	1.0	0.10	ug/l	1	11/17/06	11/17/06	MS	EPA 245.1 [2]	EPA 245.1 [4]
Selenium [a]	56 U	100	56	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]
Silver	0.90 U	10	0.90	ug/l	1	11/16/06	11/16/06	RS	EPA 200.7 [1]	EPA 200.7 [3]

(1) Instrument QC Batch: MA5351
(2) Instrument QC Batch: MA5357
(3) Prep QC Batch: MP10712
(4) Prep QC Batch: MP10717

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45254-5	Date Sampled:	11/13/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026377.D	1	11/27/06	AB	n/a	n/a	VJ1086
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	40.1	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45254-5	Date Sampled:	11/13/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	3.2	5.0	1.0	ug/l	J
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45254-5	Date Sampled:	11/13/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/15/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		86-115%
17060-07-0	1,2-Dichloroethane-D4	108%		73-126%
2037-26-5	Toluene-D8	90%		86-112%
460-00-4	4-Bromofluorobenzene	103%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F45254

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number [1]: 50361.01.04

P.O. NA

Chain of Custody Number [1]: 111420062

LIMS Number: NA

Facility/Site I.D.: 1101.MN

Project Name / Site Name: SI 08

Client Name: USACE

Collected by: T Lazero

Field Sample ID (10 Character Max)	ERPIMS LOCID (15 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)		AA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
4) S10-MW01	S10-MW01	13/11/2006	1100	0'	0'	N	1	AQ	8	DI	DI	DI	DI								2
5) Trip Blank	Field QC	13/11/2006	1100			TB		AQ	1	DI											2

Sample Analysis Requested [5]

Quality Assurance Samples [6]

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;kevlng@planet.com;mdasher@bhate.com

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.		11-14-2006	1600			
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 06-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-c) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, If sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OS = Soil Gas, WQ = Groundwater, WS = Surface Water, SO = Soil, BR = Bedrock, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc). SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

1.8°

4.1 4

F45254: Chain of Custody
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ACCUTEST Laboratories

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F45254

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

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Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 111420061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Field Sample ID (30 Character Max)	DRPIMS LOCID (15 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (military) (hhmm)	Sample Depth (beginning - ending)		SA Code [2]	Sample Number [3]	Sample Match [4]	Number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
									Sample Analysis Requested [5]									Quality Assurance Samples [6]			
1) SD-08-MW08-01	SD-08-MW08-01	13/11/2006	1140	0'	0'	N	1	AQ	8	3	3	1	1								1
2) SD-08-MW08-05	SD-08-MW08-05	13/11/2006	0940	0'	0'	N	1	AQ	8	3	3	1	1								1
3) Trip Blank	Field QC	13/11/2006	0940			TB		AQ	1	3											1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;mdaulton@bhate.com

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.		11-14-2006	1600			
2.						
3.					11/16/06	0945

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

2.0°

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes. N = Normal Sample, TB = Trip Blank (-a) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-c)

3.) Sample Number. Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OS = Soil Gas, WG = Ground-water, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

F45254: Chain of Custody
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ACCUTEST Laboratories

F45254

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F45254 CLIENT: BHATE PROJECT: SD 08

DATE/TIME RECEIVED: 11/15/06 - 0945 # OF COOLERS RECEIVED: 2 COOLER TEMPS: 2.0, 1.8,

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 858101025857

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [x] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

MISC. INFORMATION

NUMBER OF ENCORES ? ~~0~~

NUMBER OF 5035 FIELD KITS ? ~~0~~

NUMBER OR LAB FILTERED METALS ? ~~0~~

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE [signature] TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

4.1 4

F45254: Chain of Custody
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F45254

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number: 50361.01.04

P.O. NA

Chain of Custody Number [1]: 111420062

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Sample Analysis Requested [4]

Quality Assurance Samples [6]

Field Sample ID (20 Character Max)	SMPSHD LOCID (12 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
4) S10-MW01	S10-MW01	13/11/2006	1100	0' 0'	N	1	AQ	8	5	5	5	5								2
5) Trip Blank	Field QC	13/11/2006	1100		TB		AQ	1	2											2

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com mkeving@planet.com mdsuben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.		11-14-2006	1600	1.		
2.				2.		
3.				3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Receipt: Delivery Date/Time:

1.8°

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Code: N = Normal Sample, TB = Trip Blank (-q) Sample, FD = Field Duplicate (-a) Sample, FR = Field Replicate (-b) Sample, EB = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OS = Soil Gas, WG = Groundwater, WS = Surface Water, DW = Drinking Water, SB = Sediment, SL = Sludge, SS = Surface Soil Sample, WQ = Aqueous Blank Sample (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

4.1 4

ACCUTEST LABORATORIES

F45254

F45254

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 11142006 1

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Sample Analyte Requested [5]

Quality Assurance Samples [6]

Field Sample ID (20 Character Max)	SRPMS LOCID (14 Character Max)	Date Collected (MM-DD-YYYY)	Time Collected (Military) (Minutes)	Sample Depth (beginning - ending)		EA Code [2]	Sample Number [3]	Sample Matrix [4]	number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
1) SD-08-MW08-01	SD-08-MW08-01	13/11/2006	1140	0'	0'	N	1	AQ	8	[5]	[5]	[5]	[5]								1
2) SD-08-MW08-05	SD-08-MW08-05	13/11/2006	0940	0'	0'	N	1	AQ	8	[5]	[5]	[5]	[5]								1
3) Trip Blank	Field QC	13/11/2006	0940			TB		AQ	1	[5]											1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;keying@planet.com;mdaubon@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	11-14-2006	1600	1.		
2.			2.		
3.			3.		1115

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab:

Method of Shipment: FEDEX

Analytical Lab: Accutest Lab

Lab Recipient:

Shipped No.:

Airbill Number:

Delivery Location: Orlando FL

Delivery Date/Time:

2.0°

1.) Chain of Custody Number = date collected + custody number (e.g. 09-01-1999-01)

2.) Sample Type (EA) Codes: N = Normal Sample, TB = Trip Blank (-a) Sample, FD = Field Duplicate (-a) Sample, FR = Field Replicate (-A) Sample, EB = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-a)

3.) Sample Number. Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OB = Bell Gas, WG = Groundwater, WS = Surface Water, BO = Bulk, BS = Sediment, SL = Sludge, SS = Surface Soil Sample, WQ = Aqueous Blank Sample (s/p, equipment, ambient, etc), SQ = Soil Blank

5.) Sample Analyte Requested. Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101009-01 in the Equipment Blank Lot Control

4.1 4

ACCUTEST. Laboratories

F45254

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F45254 CLIENT: BHATE PROJECT: SD.08

DATE/TIME RECEIVED: 11/15/06 - 0945 # OF COOLERS RECEIVED: 2 COOLER TEMPS: 2.0, 1.8

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 858101025857

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [x] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

MISC. INFORMATION

NUMBER OF ENCORES ? 0

NUMBER OF 5035 FIELD KITS ? 0

NUMBER OR LAB FILTERED METALS ? 0

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE [signature] TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

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F45254: Chain of Custody
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GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1086-MB	J026367.D	1	11/27/06	AB	n/a	n/a	VJ1086

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1086-MB	J026367.D	1	11/27/06	AB	n/a	n/a	VJ1086

5.1 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1086-MB	J026367.D	1	11/27/06	AB	n/a	n/a	VJ1086

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	110%	86-115%
17060-07-0	1,2-Dichloroethane-D4	106%	73-126%
2037-26-5	Toluene-D8	92%	86-112%
460-00-4	4-Bromofluorobenzene	102%	83-119%

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1087-MB	J026396.D	1	11/28/06	AB	n/a	n/a	VJ1087

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1

CAS No.	Compound	Result	RL	MDL	Units	Q
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	112%	86-115%
17060-07-0	1,2-Dichloroethane-D4	112%	73-126%
2037-26-5	Toluene-D8	91%	86-112%
460-00-4	4-Bromofluorobenzene	106%	83-119%

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1086-BS	J026364.D	1	11/27/06	AB	n/a	n/a	VJ1086

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	116	93	44-142
75-05-8	Acetonitrile	250	233	93	50-150 [a]
107-02-8	Acrolein	125	83.0	66	32-168
107-13-1	Acrylonitrile	125	120	96	35-130
107-05-1	Allyl chloride	25	25.2	101	50-150 [a]
71-43-2	Benzene	25	29.0	116	80-120
100-44-7	Benzyl Chloride	25	24.6	98	50-150 [a]
108-86-1	Bromobenzene	25	27.3	109	76-114
74-97-5	Bromochloromethane	25	27.9	112	75-121
75-27-4	Bromodichloromethane	25	28.3	113	75-120
75-25-2	Bromoform	25	29.5	118	60-129
104-51-8	n-Butylbenzene	25	26.8	107	76-122
135-98-8	sec-Butylbenzene	25	29.2	117	84-122
98-06-6	tert-Butylbenzene	25	28.3	113	77-124
108-90-7	Chlorobenzene	25	28.5	114*	82-112
75-00-3	Chloroethane	25	29.2	117	67-148
67-66-3	Chloroform	25	29.0	116	78-118
544-10-5	1-Chlorohexane	25	28.5	114	82-130
95-49-8	o-Chlorotoluene	25	26.9	108	80-121
106-43-4	p-Chlorotoluene	25	27.5	110	78-120
110-75-8	2-Chloroethyl vinyl ether	125	140	112	23-132
75-15-0	Carbon disulfide	25	25.9	104	65-147
56-23-5	Carbon tetrachloride	25	31.3	125	69-137
75-34-3	1,1-Dichloroethane	25	28.7	115	75-117
75-35-4	1,1-Dichloroethylene	25	26.7	107	67-134
563-58-6	1,1-Dichloropropene	25	29.9	120	84-127
96-12-8	1,2-Dibromo-3-chloropropane	25	23.4	94	54-125
106-93-4	1,2-Dibromoethane	25	26.4	106	68-116
107-06-2	1,2-Dichloroethane	25	28.6	114	68-121
78-87-5	1,2-Dichloropropane	25	28.6	114	78-122
142-28-9	1,3-Dichloropropane	25	27.0	108	72-116
594-20-7	2,2-Dichloropropane	25	29.4	118	68-134
124-48-1	Dibromochloromethane	25	26.2	105	68-118
75-71-8	Dichlorodifluoromethane	25	21.9	88	43-173
156-59-2	cis-1,2-Dichloroethylene	25	27.9	112	81-120
10061-01-5	cis-1,3-Dichloropropene	25	29.8	119*	73-115

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1086-BS	J026364.D	1	11/27/06	AB	n/a	n/a	VJ1086

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	25	27.0	108	50-150 [a]
541-73-1	m-Dichlorobenzene	25	28.4	114	78-116
95-50-1	o-Dichlorobenzene	25	28.6	114	77-115
106-46-7	p-Dichlorobenzene	25	27.2	109	77-113
156-60-5	trans-1,2-Dichloroethylene	25	28.4	114	74-125
10061-02-6	trans-1,3-Dichloropropene	25	28.3	113	69-115
100-41-4	Ethylbenzene	25	27.7	111	82-115
97-63-2	Ethyl methacrylate	25	22.8	91	50-150 [a]
76-13-1	Freon 113	25	28.1	112	72-148
591-78-6	2-Hexanone	125	122	98	60-125
87-68-3	Hexachlorobutadiene	25	31.0	124	62-138
110-54-3	Hexane	25	28.2	113	70-148
98-82-8	Isopropylbenzene	25	29.2	117	83-129
99-87-6	p-Isopropyltoluene	25	29.3	117	85-125
108-10-1	4-Methyl-2-pentanone	125	122	98	61-128
126-98-7	Methacrylonitrile	250	239	96	50-150 [a]
74-83-9	Methyl bromide	25	26.2	105	60-165
74-87-3	Methyl chloride	25	30.2	121	58-152
74-88-4	Methyl iodide	25	26.8	107	61-140
80-62-6	Methyl methacrylate	25	24.0	96	71-128
74-95-3	Methylene bromide	25	28.9	116*	75-114
75-09-2	Methylene chloride	25	25.3	101	66-125
78-93-3	Methyl ethyl ketone	125	128	102	58-127
1634-04-4	Methyl Tert Butyl Ether	25	25.9	104	67-127
91-20-3	Naphthalene	25	24.7	99	62-129
76-01-7	Pentachloroethane	25	25.5	102	50-150 [a]
107-12-0	Propionitrile	250	255	102	50-150 [a]
103-65-1	n-Propylbenzene	25	28.0	112	80-122
100-42-5	Styrene	25	26.0	104	58-125
630-20-6	1,1,1,2-Tetrachloroethane	25	28.2	113	73-118
71-55-6	1,1,1-Trichloroethane	25	30.0	120	78-132
79-34-5	1,1,2,2-Tetrachloroethane	25	24.8	99	67-119
79-00-5	1,1,2-Trichloroethane	25	26.9	108	74-115
87-61-6	1,2,3-Trichlorobenzene	25	26.4	106	65-125
96-18-4	1,2,3-Trichloropropane	25	25.5	102	68-114
120-82-1	1,2,4-Trichlorobenzene	25	26.9	108	66-122

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1086-BS	J026364.D	1	11/27/06	AB	n/a	n/a	VJ1086

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	25	28.5	114	77-119
108-67-8	1,3,5-Trimethylbenzene	25	28.1	112	81-120
127-18-4	Tetrachloroethylene	25	30.3	121	75-126
108-88-3	Toluene	25	28.0	112	81-114
79-01-6	Trichloroethylene	25	28.7	115	80-115
75-69-4	Trichlorofluoromethane	25	25.8	103	65-163
110-57-6	Trans-1,4-Dichloro-2-Butene	25	28.4	114	38-130
75-01-4	Vinyl chloride	25	24.0	96	70-151
108-05-4	Vinyl Acetate	125	130	104	42-146
	m,p-Xylene	50	58.8	118	83-118
95-47-6	o-Xylene	25	27.0	108	77-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	86-115%
17060-07-0	1,2-Dichloroethane-D4	103%	73-126%
2037-26-5	Toluene-D8	97%	86-112%
460-00-4	4-Bromofluorobenzene	95%	83-119%

(a) Advisory control limits.

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1087-BS	J026393.D	1	11/28/06	AB	n/a	n/a	VJ1087

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
107-06-2	1,2-Dichloroethane	25	29.7	119	68-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	103%	86-115%
17060-07-0	1,2-Dichloroethane-D4	106%	73-126%
2037-26-5	Toluene-D8	97%	86-112%
460-00-4	4-Bromofluorobenzene	96%	83-119%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45254-1MS	J026372.D	1	11/27/06	AB	n/a	n/a	VJ1086
F45254-1MSD	J026373.D	1	11/27/06	AB	n/a	n/a	VJ1086
F45254-1	J026371.D	1	11/27/06	AB	n/a	n/a	VJ1086

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	F45254-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		125	136	109	128	102	6	45-127/15
75-05-8	Acetonitrile	ND		250	224	90	212	85	6	50-150/30 [a]
107-02-8	Acrolein	ND		125	503	402*	511	409*	2	26-185/18
107-13-1	Acrylonitrile	ND		125	118	94	113	90	4	39-140/12
107-05-1	Allyl chloride	ND		25	24.6	98	23.2	93	6	50-150/30 [a]
71-43-2	Benzene	0.57	J	25	28.9	113	28.4	111	2	72-125/7
100-44-7	Benzyl Chloride	ND		25	26.0	104	24.6	98	6	50-150/30 [a]
108-86-1	Bromobenzene	ND		25	26.2	105	25.8	103	2	72-113/10
74-97-5	Bromochloromethane	ND		25	26.4	106	25.8	103	2	73-121/9
75-27-4	Bromodichloromethane	ND		25	28.6	114	28.1	112	2	72-120/8
75-25-2	Bromoform	ND		25	29.1	116	29.2	117	0	55-127/11
104-51-8	n-Butylbenzene	ND		25	24.3	97	23.2	93	5	69-122/10
135-98-8	sec-Butylbenzene	ND		25	26.7	107	26.4	106	1	75-125/9
98-06-6	tert-Butylbenzene	0.57	J	25	27.2	107	26.5	104	3	70-125/12
108-90-7	Chlorobenzene	ND		25	27.9	112	27.5	110	1	79-113/7
75-00-3	Chloroethane	ND		25	29.9	120	29.1	116	3	56-164/14
67-66-3	Chloroform	ND		25	29.1	116	28.6	114	2	75-120/8
544-10-5	1-Chlorohexane	ND		25	27.3	109	26.4	106	3	77-127/9
95-49-8	o-Chlorotoluene	ND		25	25.6	102	25.0	100	2	76-122/9
106-43-4	p-Chlorotoluene	ND		25	26.5	106	25.7	103	3	73-120/9
110-75-8	2-Chloroethyl vinyl ether	ND		125	ND	0*	ND	0*	nc	8-137/18
75-15-0	Carbon disulfide	ND		25	25.8	103	24.4	98	6	60-151/12
56-23-5	Carbon tetrachloride	ND		25	30.8	123	31.0	124	1	56-145/12
75-34-3	1,1-Dichloroethane	ND		25	28.4	114	27.7	111	2	70-122/10
75-35-4	1,1-Dichloroethylene	ND		25	25.7	103	25.1	100	2	61-137/15
563-58-6	1,1-Dichloropropene	ND		25	29.5	118	29.1	116	1	80-126/9
96-12-8	1,2-Dibromo-3-chloropropane	ND		25	28.4	114	26.1	104	8	49-127/18
106-93-4	1,2-Dibromoethane	ND		25	26.4	106	26.1	104	1	67-113/10
107-06-2	1,2-Dichloroethane	141	E	25	168	108	164	92	2	64-124/7
78-87-5	1,2-Dichloropropane	10.3		25	38.6	113	37.9	110	2	74-123/8
142-28-9	1,3-Dichloropropane	ND		25	26.9	108	25.9	104	4	70-116/8
594-20-7	2,2-Dichloropropane	ND		25	28.9	116	28.2	113	2	64-133/13
124-48-1	Dibromochloromethane	ND		25	25.7	103	25.5	102	1	63-119/9
75-71-8	Dichlorodifluoromethane	ND		25	21.7	87	21.2	85	2	35-184/21
156-59-2	cis-1,2-Dichloroethylene	ND		25	27.3	109	27.2	109	0	74-125/9
10061-01-5	cis-1,3-Dichloropropene	ND		25	29.1	116*	28.4	114*	2	65-112/10

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45254-1MS	J026372.D	1	11/27/06	AB	n/a	n/a	VJ1086
F45254-1MSD	J026373.D	1	11/27/06	AB	n/a	n/a	VJ1086
F45254-1	J026371.D	1	11/27/06	AB	n/a	n/a	VJ1086

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	F45254-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		25	23.9	96	20.8	83	14	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		25	26.9	108	27.0	108	0	74-114/7
95-50-1	o-Dichlorobenzene	0.52	J	25	28.7	113	27.9	110	3	73-114/8
106-46-7	p-Dichlorobenzene	ND		25	26.2	105	25.7	103	2	74-112/7
156-60-5	trans-1,2-Dichloroethylene	ND		25	28.0	112	27.2	109	3	70-127/11
10061-02-6	trans-1,3-Dichloropropene	ND		25	27.6	110	26.7	107	3	59-116/11
100-41-4	Ethylbenzene	ND		25	27.3	109	26.9	108	1	73-119/8
97-63-2	Ethyl methacrylate	ND		25	24.5	98	23.6	94	4	50-150/30 [a]
76-13-1	Freon 113	ND		25	27.0	108	26.6	106	1	67-151/14
591-78-6	2-Hexanone	ND		125	146	117	140	112	4	54-131/11
87-68-3	Hexachlorobutadiene	ND		25	20.9	84	20.6	82	1	52-133/13
110-54-3	Hexane	ND		25	26.4	106	24.6	98	7	62-153/12
98-82-8	Isopropylbenzene	ND		25	28.7	115	28.4	114	1	79-127/8
99-87-6	p-Isopropyltoluene	ND		25	26.8	107	26.4	106	2	77-126/8
108-10-1	4-Methyl-2-pentanone	ND		125	142	114	134	107	6	57-136/11
126-98-7	Methacrylonitrile	ND		250	244	98	231	92	5	50-150/30 [a]
74-83-9	Methyl bromide	ND		25	26.2	105	26.7	107	2	52-172/16
74-87-3	Methyl chloride	ND		25	32.8	131	29.1	116	12	53-155/19
74-88-4	Methyl iodide	ND		25	25.9	104	25.3	101	2	52-141/12
80-62-6	Methyl methacrylate	ND		25	29.3	117*	27.6	110	6	76-115/11
74-95-3	Methylene bromide	ND		25	29.2	117*	28.4	114	3	73-115/9
75-09-2	Methylene chloride	ND		25	25.3	101	24.1	96	5	61-129/11
78-93-3	Methyl ethyl ketone	ND		125	256	205*	242	194*	6	51-128/10
1634-04-4	Methyl Tert Butyl Ether	ND		25	26.5	106	26.3	105	1	61-129/9
91-20-3	Naphthalene	ND		25	32.5	130*	31.1	124	4	52-127/13
76-01-7	Pentachloroethane	ND		25	24.1	96	24.2	97	0	50-150/30 [a]
107-12-0	Propionitrile	ND		250	250	100	242	97	3	50-150/30 [a]
103-65-1	n-Propylbenzene	ND		25	26.6	106	25.8	103	3	73-123/10
100-42-5	Styrene	ND		25	26.3	105	25.9	104	2	64-124/11
630-20-6	1,1,1,2-Tetrachloroethane	ND		25	28.1	112	27.9	112	1	69-118/8
71-55-6	1,1,1-Trichloroethane	ND		25	30.1	120	30.0	120	0	72-133/8
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	25.6	102	24.7	99	4	64-120/10
79-00-5	1,1,2-Trichloroethane	3.9		25	30.3	106	30.0	104	1	72-116/9
87-61-6	1,2,3-Trichlorobenzene	ND		25	29.8	119	29.3	117	2	58-121/12
96-18-4	1,2,3-Trichloropropane	ND		25	27.2	109	26.0	104	5	63-116/13
120-82-1	1,2,4-Trichlorobenzene	ND		25	27.3	109	26.7	107	2	58-120/11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45254-1MS	J026372.D	1	11/27/06	AB	n/a	n/a	VJ1086
F45254-1MSD	J026373.D	1	11/27/06	AB	n/a	n/a	VJ1086
F45254-1	J026371.D	1	11/27/06	AB	n/a	n/a	VJ1086

5.3 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1, F45254-2, F45254-3, F45254-4, F45254-5

CAS No.	Compound	F45254-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	ND		25	26.9	108	26.8	107	0	68-122/10
108-67-8	1,3,5-Trimethylbenzene	ND		25	26.8	107	26.5	106	1	70-125/9
127-18-4	Tetrachloroethylene	ND		25	28.9	116	29.0	116	0	70-126/9
108-88-3	Toluene	ND		25	27.5	110	27.3	109	1	67-123/8
79-01-6	Trichloroethylene	ND		25	31.8	127*	31.0	124*	3	73-117/10
75-69-4	Trichlorofluoromethane	ND		25	26.5	106	26.2	105	1	52-164/16
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		25	28.7	115	24.6	98	15	27-131/22
75-01-4	Vinyl chloride	ND		25	23.0	92	23.7	95	3	63-161/18
108-05-4	Vinyl Acetate	ND		125	136	109	131	105	4	37-154/10
	m,p-Xylene	ND		50	57.4	115	56.8	114	1	74-123/7
95-47-6	o-Xylene	ND		25	27.1	108	26.8	107	1	68-123/7

CAS No.	Surrogate Recoveries	MS	MSD	F45254-1	Limits
1868-53-7	Dibromofluoromethane	103%	103%	104%	86-115%
17060-07-0	1,2-Dichloroethane-D4	103%	101%	105%	73-126%
2037-26-5	Toluene-D8	96%	96%	89%	86-112%
460-00-4	4-Bromofluorobenzene	95%	92%	96%	83-119%

(a) Advisory control limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45309-5MS	J026407.D	1	11/28/06	AB	n/a	n/a	VJ1087
F45309-5MSD	J026408.D	1	11/28/06	AB	n/a	n/a	VJ1087
F45309-5	J026406.D	1	11/28/06	AB	n/a	n/a	VJ1087

The QC reported here applies to the following samples: Method: SW846 8260B

F45254-1

CAS No.	Compound	F45309-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
107-06-2	1,2-Dichloroethane	ND		25	31.1	124	30.6	122	2	64-124/7

CAS No.	Surrogate Recoveries	MS	MSD	F45309-5	Limits
1868-53-7	Dibromofluoromethane	105%	104%	112%	86-115%
17060-07-0	1,2-Dichloroethane-D4	117%	114%	119%	73-126%
2037-26-5	Toluene-D8	97%	98%	90%	86-112%
460-00-4	4-Bromofluorobenzene	97%	97%	107%	83-119%

GC/MS Semi-volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MB	R05968.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MB	R05968.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	24%	19-90%
4165-62-2	Phenol-d5	15%	10-68%

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MB	R05968.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	79%	36-137%
4165-60-0	Nitrobenzene-d5	75%	49-119%
321-60-8	2-Fluorobiphenyl	72%	45-118%
1718-51-0	Terphenyl-d14	77%	46-135%

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MB	R05980.D	1	11/22/06	ME	11/17/06	OP18556	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MB	R05980.D	1	11/22/06	ME	11/17/06	OP18556	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	24%	19-90%
4165-62-2	Phenol-d5	16%	10-68%

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MB	R05980.D	1	11/22/06	ME	11/17/06	OP18556	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	76%	36-137%
4165-60-0	Nitrobenzene-d5	71%	49-119%
321-60-8	2-Fluorobiphenyl	71%	45-118%
1718-51-0	Terphenyl-d14	71%	46-135%

6.1

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Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-BS	R05967.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-57-8	2-Chlorophenol	50	24.3	49*	57-100
59-50-7	4-Chloro-3-methyl phenol	50	29.0	58*	63-105
120-83-2	2,4-Dichlorophenol	50	31.7	63*	65-106
105-67-9	2,4-Dimethylphenol	50	22.2	44*	49-90
51-28-5	2,4-Dinitrophenol	100	68.8	69	26-125
534-52-1	4,6-Dinitro-o-cresol	100	81.5	82	56-121
95-48-7	2-Methylphenol	50	17.7	35*	48-90
	3&4-Methylphenol	100	32.4	32*	43-94
88-75-5	2-Nitrophenol	50	33.1	66	62-107
100-02-7	4-Nitrophenol	100	15.9	16*	19-66
87-86-5	Pentachlorophenol	100	79.3	79	62-120
108-95-2	Phenol	50	8.6	17*	20-65
95-95-4	2,4,5-Trichlorophenol	50	34.0	68	67-103
88-06-2	2,4,6-Trichlorophenol	50	35.4	71	68-104
83-32-9	Acenaphthene	50	37.1	74	67-101
208-96-8	Acenaphthylene	50	36.2	72	65-100
120-12-7	Anthracene	50	40.7	81	71-103
56-55-3	Benzo(a)anthracene	50	35.3	71	71-105
50-32-8	Benzo(a)pyrene	50	38.9	78	67-106
205-99-2	Benzo(b)fluoranthene	50	39.8	80	68-108
191-24-2	Benzo(g,h,i)perylene	50	39.0	78	65-110
207-08-9	Benzo(k)fluoranthene	50	40.9	82	69-110
101-55-3	4-Bromophenyl phenyl ether	50	38.9	78	71-106
85-68-7	Butyl benzyl phthalate	50	35.5	71	66-110
100-51-6	Benzyl Alcohol	50	20.1	40	36-101
91-58-7	2-Chloronaphthalene	50	34.4	69	62-99
106-47-8	4-Chloroaniline	50	29.2	58	58-101
218-01-9	Chrysene	50	36.3	73	71-105
111-91-1	bis(2-Chloroethoxy)methane	50	31.6	63	56-101
111-44-4	bis(2-Chloroethyl)ether	50	33.6	67	60-108
108-60-1	bis(2-Chloroisopropyl)ether	50	31.3	63	49-108
7005-72-3	4-Chlorophenyl phenyl ether	50	38.1	76	69-106
95-50-1	1,2-Dichlorobenzene	50	32.1	64	48-98
541-73-1	1,3-Dichlorobenzene	50	30.4	61	44-95
106-46-7	1,4-Dichlorobenzene	50	31.1	62	46-96
121-14-2	2,4-Dinitrotoluene	50	38.2	76	64-107

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-BS	R05967.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
606-20-2	2,6-Dinitrotoluene	50	36.2	72	64-102
91-94-1	3,3'-Dichlorobenzidine	50	33.4	67	54-109
53-70-3	Dibenzo(a,h)anthracene	50	39.4	79	61-112
132-64-9	Dibenzofuran	50	36.1	72	70-102
84-74-2	Di-n-butyl phthalate	50	39.9	80	69-109
117-84-0	Di-n-octyl phthalate	50	41.4	83	63-125
84-66-2	Diethyl phthalate	50	39.1	78	66-111
131-11-3	Dimethyl phthalate	50	37.3	75	66-109
117-81-7	bis(2-Ethylhexyl)phthalate	50	36.8	74	66-114
206-44-0	Fluoranthene	50	40.7	81	71-108
86-73-7	Fluorene	50	38.5	77	68-102
118-74-1	Hexachlorobenzene	50	39.0	78	69-103
87-68-3	Hexachlorobutadiene	50	31.1	62	48-100
77-47-4	Hexachlorocyclopentadiene	50	28.4	57	20-85
67-72-1	Hexachloroethane	50	29.5	59	41-98
193-39-5	Indeno(1,2,3-cd)pyrene	50	39.3	79	66-112
78-59-1	Isophorone	50	36.0	72	62-105
91-57-6	2-Methylnaphthalene	50	36.5	73	62-105
88-74-4	2-Nitroaniline	50	36.7	73	66-105
99-09-2	3-Nitroaniline	50	30.3	61	56-104
100-01-6	4-Nitroaniline	50	33.3	67	62-110
91-20-3	Naphthalene	50	33.9	68	56-99
98-95-3	Nitrobenzene	50	33.9	68	60-102
621-64-7	N-Nitroso-di-n-propylamine	50	34.4	69	56-101
86-30-6	N-Nitrosodiphenylamine	50	37.6	75	69-106
85-01-8	Phenanthrene	50	40.1	80	71-104
129-00-0	Pyrene	50	36.0	72	67-108
120-82-1	1,2,4-Trichlorobenzene	50	33.0	66	52-99

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	23%	19-90%
4165-62-2	Phenol-d5	15%	10-68%
118-79-6	2,4,6-Tribromophenol	78%	36-137%
4165-60-0	Nitrobenzene-d5	65%	49-119%

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-BS	R05967.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Surrogate Recoveries	BSP	Limits
321-60-8	2-Fluorobiphenyl	65%	45-118%
1718-51-0	Terphenyl-d14	68%	46-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MS	R05972.D	1	11/22/06	ME	11/17/06	OP18556	SR280
OP18556-MSD	R05973.D	1	11/22/06	ME	11/17/06	OP18556	SR280
F45254-2 [a]	R05971.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	F45254-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		200	53.6	27	57.6	29	7	10-80/45
95-57-8	2-Chlorophenol	ND		100	54.9	55	54.2	54	1	43-109/27
59-50-7	4-Chloro-3-methyl phenol	ND		100	74.1	74	70.5	71	5	57-109/20
120-83-2	2,4-Dichlorophenol	ND		100	66.7	67	65.2	65	2	49-114/23
105-67-9	2,4-Dimethylphenol	ND		100	53.2	53	51.3	51	4	32-103/24
51-28-5	2,4-Dinitrophenol	ND		200	166	83	156	78	6	20-131/28
534-52-1	4,6-Dinitro-o-cresol	ND		200	184	92	168	84	9	46-130/23
95-48-7	2-Methylphenol	ND		100	46.2	46	45.6	46	1	40-102/25
	3&4-Methylphenol	ND		200	91.3	46	92.6	46	1	39-97/24
88-75-5	2-Nitrophenol	ND		100	66.2	66	63.3	63	4	46-115/26
100-02-7	4-Nitrophenol	ND		200	68.4	34	68.8	34	1	28-81/30
87-86-5	Pentachlorophenol	ND		200	195	98	174	87	11	53-128/22
108-95-2	Phenol	ND		100	27.8	28	27.7	28	0	19-81/33
95-95-4	2,4,5-Trichlorophenol	ND		100	79.4	79	72.2	72	9	56-110/19
88-06-2	2,4,6-Trichlorophenol	ND		100	75.4	75	70.4	70	7	55-112/19
83-32-9	Acenaphthene	ND		100	81.3	81	75.9	76	7	58-109/18
208-96-8	Acenaphthylene	ND		100	78.2	78	72.7	73	7	59-103/18
120-12-7	Anthracene	ND		100	91.0	91	82.6	83	10	65-108/16
56-55-3	Benzo(a)anthracene	ND		100	80.1	80	73.1	73	9	68-106/17
50-32-8	Benzo(a)pyrene	ND		100	88.9	89	80.6	81	10	61-108/18
205-99-2	Benzo(b)fluoranthene	ND		100	89.6	90	81.3	81	10	65-109/18
191-24-2	Benzo(g,h,i)perylene	ND		100	88.6	89	79.5	80	11	60-114/19
207-08-9	Benzo(k)fluoranthene	ND		100	88.7	89	81.6	82	8	66-111/17
101-55-3	4-Bromophenyl phenyl ether	ND		100	88.7	89	81.1	81	9	68-108/17
85-68-7	Butyl benzyl phthalate	ND		100	80.7	81	74.2	74	8	64-111/18
100-51-6	Benzyl Alcohol	ND		100	53.7	54	57.8	58	7	44-105/26
91-58-7	2-Chloronaphthalene	ND		100	71.7	72	68.0	68	5	57-102/20
106-47-8	4-Chloroaniline	ND		100	54.9	55	55.3	55	1	37-106/27
218-01-9	Chrysene	ND		100	82.1	82	73.9	74	11	69-106/17
111-91-1	bis(2-Chloroethoxy)methane	ND		100	62.1	62	60.8	61	2	46-106/24
111-44-4	bis(2-Chloroethyl)ether	ND		100	64.7	65	64.0	64	1	48-114/28
108-60-1	bis(2-Chloroisopropyl)ether	ND		100	60.0	60	59.9	60	0	43-110/26
7005-72-3	4-Chlorophenyl phenyl ether	ND		100	85.0	85	77.4	77	9	66-107/17
95-50-1	1,2-Dichlorobenzene	ND		100	66.3	66	64.3	64	3	45-103/24
541-73-1	1,3-Dichlorobenzene	ND		100	63.5	64	60.5	61	5	42-100/24
106-46-7	1,4-Dichlorobenzene	ND		100	63.9	64	61.4	61	4	43-102/24

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MS	R05972.D	1	11/22/06	ME	11/17/06	OP18556	SR280
OP18556-MSD	R05973.D	1	11/22/06	ME	11/17/06	OP18556	SR280
F45254-2 [a]	R05971.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Compound	F45254-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
121-14-2	2,4-Dinitrotoluene	ND		100	90.9	91	81.7	82	11	60-108/18
606-20-2	2,6-Dinitrotoluene	ND		100	83.4	83	75.2	75	10	59-105/18
91-94-1	3,3'-Dichlorobenzidine	ND		100	66.1	66	61.5	62	7	21-120/24
53-70-3	Dibenzo(a,h)anthracene	ND		100	89.4	89	80.5	81	10	59-112/18
132-64-9	Dibenzofuran	ND		100	81.1	81	76.4	76	6	65-105/17
84-74-2	Di-n-butyl phthalate	ND		100	90.8	91	82.7	83	9	68-109/18
117-84-0	Di-n-octyl phthalate	ND		100	90.9	91	83.9	84	8	59-127/23
84-66-2	Diethyl phthalate	ND		100	89.6	90	82.9	83	8	64-111/18
131-11-3	Dimethyl phthalate	ND		100	85.7	86	79.2	79	8	63-109/17
117-81-7	bis(2-Ethylhexyl)phthalate	3.6	J	100	86.2	83	79.0	75	9	58-119/21
206-44-0	Fluoranthene	ND		100	92.2	92	83.1	83	10	68-110/18
86-73-7	Fluorene	ND		100	87.9	88	80.5	81	9	62-106/17
118-74-1	Hexachlorobenzene	ND		100	88.6	89	78.6	79	12	66-106/16
87-68-3	Hexachlorobutadiene	ND		100	63.6	64	60.8	61	5	46-107/26
77-47-4	Hexachlorocyclopentadiene	ND		100	56.0	56	51.2	51	9	16-84/31
67-72-1	Hexachloroethane	ND		100	62.0	62	60.4	60	3	39-105/25
193-39-5	Indeno(1,2,3-cd)pyrene	ND		100	88.1	88	79.8	80	10	61-115/19
78-59-1	Isophorone	ND		100	73.4	73	71.4	71	3	54-107/22
91-57-6	2-Methylnaphthalene	ND		100	74.6	75	73.4	73	2	53-112/22
88-74-4	2-Nitroaniline	ND		100	86.5	87	79.4	79	9	60-108/18
99-09-2	3-Nitroaniline	ND		100	68.3	68	67.1	67	2	43-103/23
100-01-6	4-Nitroaniline	ND		100	84.3	84	79.7	80	6	55-110/19
91-20-3	Naphthalene	ND		100	68.6	69	65.4	65	5	49-104/24
98-95-3	Nitrobenzene	ND		100	64.9	65	63.2	63	3	50-107/25
621-64-7	N-Nitroso-di-n-propylamine	ND		100	71.0	71	69.4	69	2	47-104/23
86-30-6	N-Nitrosodiphenylamine	ND		100	84.9	85	76.3	76	11	63-110/17
85-01-8	Phenanthrene	ND		100	90.7	91	81.8	82	10	67-108/17
129-00-0	Pyrene	ND		100	80.3	80	73.1	73	9	65-108/18
120-82-1	1,2,4-Trichlorobenzene	ND		100	66.0	66	63.2	63	4	49-104/25

CAS No.	Surrogate Recoveries	MS	MSD	F45254-2	Limits
367-12-4	2-Fluorophenol	33%	34%	21%	19-90%
4165-62-2	Phenol-d5	24%	26%	14%	10-68%
118-79-6	2,4,6-Tribromophenol	87%	81%	86%	36-137%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18556-MS	R05972.D	1	11/22/06	ME	11/17/06	OP18556	SR280
OP18556-MSD	R05973.D	1	11/22/06	ME	11/17/06	OP18556	SR280
F45254-2 [a]	R05971.D	1	11/22/06	ME	11/17/06	OP18556	SR280

The QC reported here applies to the following samples: Method: SW846 8270C

F45254-1, F45254-2, F45254-4

CAS No.	Surrogate Recoveries	MS	MSD	F45254-2	Limits
4165-60-0	Nitrobenzene-d5	63%	63%	67%	49-119%
321-60-8	2-Fluorobiphenyl	66%	64%	70%	45-118%
1718-51-0	Terphenyl-d14	71%	66%	65%	46-135%

(a) Confirmed by re-extraction and reanalysis beyond holdtime.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18576-MB	TT03825.D	1	12/01/06	VS	11/20/06	OP18576	GTT134

The QC reported here applies to the following samples: Method: SW846 8081A

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.050	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.050	0.015	ug/l	
319-85-7	beta-BHC	ND	0.050	0.020	ug/l	
319-86-8	delta-BHC	ND	0.050	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.050	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.050	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.050	0.015	ug/l	
60-57-1	Dieldrin	ND	0.050	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.10	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.10	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.10	0.020	ug/l	
72-20-8	Endrin	ND	0.10	0.040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.10	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.10	0.040	ug/l	
53494-70-5	Endrin ketone	ND	0.10	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.050	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.10	0.020	ug/l	
76-44-8	Heptachlor	ND	0.050	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.050	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.10	0.040	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.3	ug/l	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	121%	60-138%
2051-24-3	Decachlorobiphenyl	107%	31-148%

Blank Spike Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18576-BS	TT03824.D	1	12/01/06	VS	11/20/06	OP18576	GTT134

The QC reported here applies to the following samples: Method: SW846 8081A

F45254-1, F45254-2, F45254-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
309-00-2	Aldrin	0.5	0.56	112	70-127
319-84-6	alpha-BHC	0.5	0.58	116	65-136
319-85-7	beta-BHC	0.5	0.55	110	68-133
319-86-8	delta-BHC	0.5	0.38	76	48-126
58-89-9	gamma-BHC (Lindane)	0.5	0.56	112	69-137
5103-71-9	alpha-Chlordane	0.5	0.58	116	74-127
5103-74-2	gamma-Chlordane	0.5	0.61	122	75-130
60-57-1	Dieldrin	0.5	0.58	116	76-131
72-54-8	4,4'-DDD	0.5	0.60	120	76-140
72-55-9	4,4'-DDE	0.5	0.59	118	73-137
50-29-3	4,4'-DDT	0.5	0.47	94	74-134
72-20-8	Endrin	0.5	0.61	122	78-134
1031-07-8	Endosulfan sulfate	0.5	0.53	106	73-127
7421-93-4	Endrin aldehyde	0.5	0.097	19	5-104
53494-70-5	Endrin ketone	0.5	0.52	104	80-128
959-98-8	Endosulfan-I	0.5	0.56	112	76-128
33213-65-9	Endosulfan-II	0.5	0.56	112	77-131
76-44-8	Heptachlor	0.5	0.51	102	62-137
1024-57-3	Heptachlor epoxide	0.5	0.57	114	74-130
72-43-5	Methoxychlor	0.5	0.49	98	77-131

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	102%	60-138%
2051-24-3	Decachlorobiphenyl	101%	31-148%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45254
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18576-MS	TT03830.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
OP18576-MSD	TT03831.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
F45339-1	TT03829.D	1	12/01/06	VS	11/20/06	OP18576	GTT134

The QC reported here applies to the following samples: Method: SW846 8081A

F45254-1, F45254-2, F45254-4

CAS No.	Compound	F45339-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
309-00-2	Aldrin	ND		1	0.95	95	0.84	84	12	73-135/25
319-84-6	alpha-BHC	ND		1	1.1	110	1.1	110	0	75-134/24
319-85-7	beta-BHC	ND		1	1.1	110	0.98	98	12	73-141/23
319-86-8	delta-BHC	ND		1	0.70	70	0.61	61	14	29-148/32
58-89-9	gamma-BHC (Lindane)	ND		1	1.1	110	1.0	100	10	75-140/21
5103-71-9	alpha-Chlordane	ND		1	0.98	98	0.85	85	14	73-135/22
5103-74-2	gamma-Chlordane	ND		1	0.99	99	0.87	87	13	74-138/26
60-57-1	Dieldrin	ND		1	1.1	110	1.0	100	10	74-141/23
72-54-8	4,4'-DDD	ND		1	1.0	100	0.93	93	7	81-142/24
72-55-9	4,4'-DDE	ND		1	0.88	88	0.75	75*	16	77-139/26
50-29-3	4,4'-DDT	ND		1	0.68	68	0.56	56*	19	65-147/29
72-20-8	Endrin	ND		1	1.1	110	1.0	100	10	72-149/21
1031-07-8	Endosulfan sulfate	ND		1	0.96	96	0.83	83	15	66-140/31
7421-93-4	Endrin aldehyde	ND		1	0.19	19	0.086	9	75*	5-113/49
53494-70-5	Endrin ketone	ND		1	0.93	93	0.87	87	7	75-138/25
959-98-8	Endosulfan-I	ND		1	1.1	110	0.97	97	13	74-139/21
33213-65-9	Endosulfan-II	ND		1	1.1	110	0.96	96	14	70-145/25
76-44-8	Heptachlor	ND		1	0.89	89	0.82	82	8	74-136/25
1024-57-3	Heptachlor epoxide	ND		1	1.0	100	0.96	96	4	75-138/21
72-43-5	Methoxychlor	ND		1	0.73	73	0.62	62*	16	69-145/27

CAS No.	Surrogate Recoveries	MS	MSD	F45339-1	Limits
877-09-8	Tetrachloro-m-xylene	102%	95%	98%	60-138%
2051-24-3	Decachlorobiphenyl	60%	54%	52%	31-148%

7.3

7

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10712
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/16/06

Metal	RL	IDL	MB raw	final
Aluminum	200	18		
Antimony	6.0	3.4		
Arsenic	10	2.8	0.0	<10
Barium	200	5	-0.030	<200
Beryllium	4.0	1		
Cadmium	5.0	1	0.090	<5.0
Calcium	1000	42		
Chromium	10	.6	-0.39	<10
Cobalt	50	1		
Copper	25	.9		
Iron	300	12		
Lead	5.0	1.7	1.9	<5.0
Magnesium	5000	4.3		
Manganese	15	.6		
Molybdenum	50	1.3		
Nickel	40	1		
Potassium	10000	10		
Selenium	10	2	2.2	<10
Silver	10	.9	-0.18	<10
Sodium	10000	500		
Thallium	10	2.3		
Tin	50	3.1		
Vanadium	50	.6		
Zinc	20	1.3		

Associated samples MP10712: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.1 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10712
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date:			11/16/06					11/16/06	
Metal	F45254-1 Original	DUP	RPD	QC Limits	F45254-1 Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic	23.4	23.2	0.9	0-20	23.4	2250	2000	111.3	70-130
Barium	15.8	15.3	3.2	0-20	15.8	2110	2000	104.7	70-130
Beryllium									
Cadmium	0.0	0.0	NC	0-20	0.0	47.2	50	94.4	70-130
Calcium									
Chromium	0.0	0.0	NC	0-20	0.0	199	200	99.5	70-130
Cobalt									
Copper									
Iron									
Lead	0.0	0.0	NC	0-20	0.0	468	500	93.6	70-130
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium	0.0	0.0 (a)	NC	0-20	0.0	2280	2000	114.0	70-130
Silver	0.0	0.0	NC	0-20	0.0	55.2	50	110.4	70-130
Sodium									
Thallium									
Tin									
Vanadium									
Zinc									

Associated samples MP10712: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Elevated reporting limit(s) due to matrix interference.

8.1.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10712
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/16/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	2010	2000	100.5	85-115
Barium	2030	2000	101.5	85-115
Beryllium				
Cadmium	51.8	50	103.6	85-115
Calcium				
Chromium	212	200	106.0	85-115
Cobalt				
Copper				
Iron				
Lead	512	500	102.4	85-115
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	1880	2000	94.0	85-115
Silver	48.6	50	97.2	85-115
Sodium				
Thallium				
Tin				
Vanadium				
Zinc				

Associated samples MP10712: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10712
Matrix Type: AQUEOUS

Methods: EPA 200.7
Units: ug/l

Prep Date: 11/16/06

Metal	F45254-1 Original	SDL 1:5	RPD	QC Limits
Aluminum				
Antimony				
Arsenic	23.4	0.00	100.0(a)	0-10
Barium	15.8	0.00	100.0(a)	0-10
Beryllium				
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	0.00	0.00	NC	0-10
Cobalt				
Copper				
Iron				
Lead	0.00	0.00	NC	0-10
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silver	0.00	0.00	NC	0-10
Sodium				
Thallium				
Tin				
Vanadium				
Zinc				

Associated samples MP10712: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

8.1.4 8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10717
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 11/17/06

Metal	RL	IDL	MB raw	final
Mercury	1.0	.08	0.012	<1.0

Associated samples MP10717: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10717
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 11/17/06 11/17/06

Metal	F45254-1 Original	DUP	RPD	QC Limits	F45254-1 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.21	0.15	33.3 (a)	0-10	0.21	2.5	3	76.3	70-130

Associated samples MP10717: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) RPD acceptable due to low duplicate and sample concentrations.

8.2.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F45254
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10717
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 11/17/06

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	2.9	3	96.7	85-115

Associated samples MP10717: F45254-1, F45254-2, F45254-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.3

8

GROUNDWATER

F45339

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

12/07/06

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F45339

Sampling Date: 11/16/06

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Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F45339

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F45339-1	11/16/06	12:45 TL	11/17/06	AQ	Ground Water	SD08-MW08-08
F45339-2	11/16/06	12:45 TL	11/17/06	AQ	Ground Water	SD08-MW08-08D
F45339-3	11/16/06	12:45 TL	11/17/06	AQ	Trip Blank Water	TRIP BLANK
F45339-4	11/16/06	12:45 TL	11/17/06	AQ	Trip Blank Water	TRIP BLANK

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F45339

Site: HOLMN **Report Date** 12/7/2006 11:00:21

2 Samples, 1 Trip Blank were collected on 11/16/2006 and received at Accutest on 11/17/2006 properly preserved, at 1.4 Deg. C and intact. These Samples received an Accutest job number of F45339. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VJ1088

All samples were analyzed within the recommended method holding time.

Sample(s) F45339-1MS, F45339-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for cis-1,3-Dichloropropene, Trans-1,4-Dichloro-2-Butene are outside control limits.

Matrix Spike Duplicate Recovery(s) for 2-Chloroethyl vinyl ether, cis-1,3-Dichloropropene, Methylene bromide are outside control limits. Refer to Blank Spike for method performance in clean matrix.

RPD(s) for MSD for 2-Chloroethyl vinyl ether are outside control limits for sample F45339-1MSD. Probable cause due to sample homogeneity.

Extractables by GCMS By Method SW846 8270C

Matrix: AQ **Batch ID:** OP18583

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) F45309-5MS, F45309-5MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

MS/MSD Recovery(s) for Benzidine are outside control limits. Probable cause due to matrix interference.

Sample(s) F45339-1, F45339-2 have surrogates outside control limits. Probable cause due to matrix interference.

F45339-1: Confirmed ND by re-extraction and reanalysis beyond holdtime.

F45339-2: Confirmed ND by re-extraction and reanalysis beyond holdtime.

Matrix: AQ **Batch ID:** OP18655

The following samples were extracted outside of holding time for method SW846 8270C: F45339-1, F45339-2

Sample(s) F45339-1, F45339-2 have surrogates outside control limits. Probable cause due to matrix interference.

F45339-1: Confirmation run.

F45339-2: Confirmation run.

Extractables by GC By Method SW846 8081A

Matrix: AQ **Batch ID:** OP18576

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) F45339-1MS, F45339-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Duplicate Recovery(s) for 4,4'-DDE, 4,4'-DDT, Methoxychlor are outside control limits. See Blank Spike.

RPD(s) for MSD for Endrin aldehyde are outside control limits for sample OP18576-MSD. Probable cause due to sample homogeneity.

Metals By Method EPA 200.7

Matrix: AQ **Batch ID:** MP10750

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45309-5DUP, F45309-5MS, F45309-5SDL were used as the QC samples for metals.

RPD(s) for Duplicate for Silver are outside control limits for sample MP10750-D1. RPD acceptable due to low duplicate and sample concentrations.

RPD(s) for Serial Dilution for Barium, Chromium, Silver are outside control limits for sample MP10750-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

F45339-1 for Selenium: Elevated reporting limit(s) due to matrix interference.

F45339-2 for Selenium: Elevated reporting limit(s) due to matrix interference.

Metals By Method EPA 245.1

Matrix: AQ **Batch ID:** MP10729

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45309-5DUP, F45309-5MS were used as the QC samples for metals.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: December 07, 2006

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Report of Analysis

3.1 3

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026425.D	1	11/29/06	AB	n/a	n/a	VJ1088
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	0.51	1.0	0.50	ug/l	J
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	112%		86-115%
17060-07-0	1,2-Dichloroethane-D4	116%		73-126%
2037-26-5	Toluene-D8	91%		86-112%
460-00-4	4-Bromofluorobenzene	104%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R06009.D	1	11/23/06	ME	11/21/06	OP18583	SR282
Run #2 [b]	L035027.D	1	11/30/06	NJ	11/28/06	OP18655	SL1795

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1040 ml	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

3.1 3

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	36%	31%	19-90%
4165-62-2	Phenol-d5	22%	22%	10-68%
118-79-6	2,4,6-Tribromophenol	75%	74%	36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	62%	64%	49-119%
321-60-8	2-Fluorobiphenyl	58%	66%	45-118%
1718-51-0	Terphenyl-d14	42%	45%	46-135%

(a) Confirmed ND by re-extraction and reanalysis beyond holdtime.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03829.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.049	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.049	0.015	ug/l	
319-85-7	beta-BHC	ND	0.049	0.020	ug/l	
319-86-8	delta-BHC	ND	0.049	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.049	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.049	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.049	0.015	ug/l	
60-57-1	Dieldrin	ND	0.049	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.098	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.098	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.098	0.020	ug/l	
72-20-8	Endrin	ND	0.098	0.039	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.098	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.098	0.039	ug/l	
53494-70-5	Endrin ketone	ND	0.098	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.049	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.098	0.020	ug/l	
76-44-8	Heptachlor	ND	0.049	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.049	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.098	0.039	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	98%		60-138%
2051-24-3	Decachlorobiphenyl	52%		31-148%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F45339-1	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.4 J	10	2.8	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Barium	41.1 J	200	0.40	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Cadmium	0.30 U	5.0	0.30	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Chromium	0.68 J	10	0.60	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Lead	1.7 U	5.0	1.7	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Mercury	0.10 U	1.0	0.10	ug/l	1	11/20/06	11/20/06	MS	EPA 245.1 [1]	EPA 245.1 [3]
Selenium [a]	110 U	200	110	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Silver	0.90 U	10	0.90	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]

(1) Instrument QC Batch: MA5360
(2) Instrument QC Batch: MA5367
(3) Prep QC Batch: MP10729
(4) Prep QC Batch: MP10750

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026426.D	1	11/29/06	AB	n/a	n/a	VJ1088
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%		86-115%
17060-07-0	1,2-Dichloroethane-D4	118%		73-126%
2037-26-5	Toluene-D8	91%		86-112%
460-00-4	4-Bromofluorobenzene	104%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	R06010.D	1	11/23/06	ME	11/21/06	OP18583	SR282
Run #2 [b]	L035028.D	1	11/30/06	NJ	11/28/06	OP18655	SL1795

	Initial Volume	Final Volume
Run #1	1010 ml	1.0 ml
Run #2	1040 ml	1.0 ml

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	9.9	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	9.9	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.9	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	9.9	ug/l	
87-86-5	Pentachlorophenol	ND	25	9.9	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	0.99	ug/l	
208-96-8	Acenaphthylene	ND	5.0	0.99	ug/l	
120-12-7	Anthracene	ND	5.0	0.99	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	0.99	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	0.99	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	0.99	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	0.99	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	0.99	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	0.99	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	0.99	ug/l	
106-47-8	4-Chloroaniline	ND	9.9	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	0.99	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	0.99	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	0.99	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	0.99	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	0.99	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	0.99	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	5.0	0.99	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	9.9	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.99	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	0.99	ug/l	
86-73-7	Fluorene	ND	5.0	0.99	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	0.99	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	0.99	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	0.99	ug/l	
88-74-4	2-Nitroaniline	ND	9.9	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	9.9	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	9.9	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	0.99	ug/l	
98-95-3	Nitrobenzene	ND	5.0	0.99	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	0.99	ug/l	
129-00-0	Pyrene	ND	5.0	0.99	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.99	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	36%	27%	19-90%
4165-62-2	Phenol-d5	22%	18%	10-68%
118-79-6	2,4,6-Tribromophenol	81%	64%	36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	68%	51%	49-119%
321-60-8	2-Fluorobiphenyl	65%	49%	45-118%
1718-51-0	Terphenyl-d14	42%	47%	46-135%

(a) Confirmed ND by re-extraction and reanalysis beyond holdtime.
(b) Confirmation run.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

3.2

3

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TT03832.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.049	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.049	0.015	ug/l	
319-85-7	beta-BHC	ND	0.049	0.020	ug/l	
319-86-8	delta-BHC	ND	0.049	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.049	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.049	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.049	0.015	ug/l	
60-57-1	Dieldrin	ND	0.049	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.098	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.098	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.098	0.020	ug/l	
72-20-8	Endrin	ND	0.098	0.039	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.098	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.098	0.039	ug/l	
53494-70-5	Endrin ketone	ND	0.098	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.049	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.098	0.020	ug/l	
76-44-8	Heptachlor	ND	0.049	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.049	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.098	0.039	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%		60-138%
2051-24-3	Decachlorobiphenyl	54%		31-148%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-08D		
Lab Sample ID:	F45339-2	Date Sampled:	11/16/06
Matrix:	AQ - Ground Water	Date Received:	11/17/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	6.0 J	10	2.8	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Barium	46.0 J	200	0.40	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Cadmium	0.43 J	5.0	0.30	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Chromium	0.60 U	10	0.60	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Lead	1.7 U	5.0	1.7	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Mercury	0.10 U	1.0	0.10	ug/l	1	11/20/06	11/20/06	MS	EPA 245.1 [1]	EPA 245.1 [3]
Selenium [a]	110 U	200	110	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]
Silver	0.90 U	10	0.90	ug/l	1	11/21/06	11/21/06	RS	EPA 200.7 [2]	EPA 200.7 [4]

(1) Instrument QC Batch: MA5360
(2) Instrument QC Batch: MA5367
(3) Prep QC Batch: MP10729
(4) Prep QC Batch: MP10750

(a) Elevated reporting limit(s) due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45339-3	Date Sampled:	11/16/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026431.D	1	11/29/06	AB	n/a	n/a	VJ1088
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45339-3	Date Sampled:	11/16/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	4.0	5.0	1.0	ug/l	J
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45339-3	Date Sampled:	11/16/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		86-115%
17060-07-0	1,2-Dichloroethane-D4	114%		73-126%
2037-26-5	Toluene-D8	91%		86-112%
460-00-4	4-Bromofluorobenzene	105%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45339-4	Date Sampled:	11/16/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026432.D	1	11/29/06	AB	n/a	n/a	VJ1088
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45339-4	Date Sampled:	11/16/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45339-4	Date Sampled:	11/16/06
Matrix:	AQ - Trip Blank Water	Date Received:	11/17/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	115%		86-115%
17060-07-0	1,2-Dichloroethane-D4	115%		73-126%
2037-26-5	Toluene-D8	91%		86-112%
460-00-4	4-Bromofluorobenzene	107%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F45339

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 111620062

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Sample Analysis Requested [4]

Quality Assurance Samples [3]

Field Sample ID (20 Character Max)	BRPIMS LOCID (12 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
1) SD08-MW08-08MS/MSD	SD08-MW08-08MS/MSD	16/11/2006	1245	0' 0'	MS/MSD	1	WG	8	N	N	N	N								2
4) Trip Blank	Field QC	16/11/2006	1245		TB		WQ	1	N											2

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@alltel.com;kevin@alltel.com;mdouben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	11-14-2006	1600	1.		
2.			2.	11/17/06	0900
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-01-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-s) Sample, FR = Field Replicate (-b) Sample, ER = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-a)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/1/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SG = Soil, SS = Sediment, SL = Sludge, SB = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-1 in the Equipment Blank Lot Control

0.4

F45339: Chain of Custody
Page 1 of 3

F45339

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 111620061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Field Sample ID (20 Character Max)	SEPMS LOCID (10 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (Hours)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Sample Analysis Requested [5]: Number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Quality Assurance Samples [6]: Code ID
1) SD08-MW08-08	SD08-MW08-08	16/11/2006	1245	0' 0'	N	1	WQ	8	3	2	2	1								1
2) SD08-MW08-08D	SD08-MW08-08D	16/11/2006	1245	0' 0'	FD	1	WQ	8	3	2	2	1								1
3) Trip Blank	Field QC	16/11/2006	1245		TB		WQ	1	3											1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;kevin@planet.com;mdauben@bhate.com

Custody Transfer Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (Signed)	Date	Time
1.	11-16-2006	1600	1.		
2.			2.	11/17/06	0900
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-d) Sample, FR = Field Replicate (-b) Sample, EB = Equipment Blank (-e) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-w)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, If sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OB = Soil Gas, WO = Groundwater, WS = Surface Water, SO = Soil, SB = Sediment, SL = Sludge, SS = Surface Soil Sample, WQ = Aqueous Blank Sample (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

4.1

4

1.4

F45339: Chain of Custody
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ACCUTEST

F45339

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F45339 CLIENT: BHATE PROJECT: HOMW.SD08

DATE/TIME RECEIVED: 11/17/06 - 0900 # OF COOLERS RECEIVED: 2 COOLER TEMPS: 1.4, 0.4

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8581 0102 5765

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [x] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

MISC. INFORMATION

NUMBER OF ENCORES ? ~~0~~

NUMBER OF 5035 FIELD KITS ? ~~0~~

NUMBER OR LAB FILTERED METALS ? ~~0~~

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE: [signature] TECHNICIAN SIGNATURE/DATE: ASBD 10/03/06

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F45339: Chain of Custody
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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1088-MB	J026420.D	1	11/29/06	AB	n/a	n/a	VJ1088

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1088-MB	J026420.D	1	11/29/06	AB	n/a	n/a	VJ1088

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1088-MB	J026420.D	1	11/29/06	AB	n/a	n/a	VJ1088

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	115%	86-115%
17060-07-0	1,2-Dichloroethane-D4	112%	73-126%
2037-26-5	Toluene-D8	89%	86-112%
460-00-4	4-Bromofluorobenzene	102%	83-119%

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1088-BS	J026419.D	1	11/29/06	AB	n/a	n/a	VJ1088

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	112	90	44-142
75-05-8	Acetonitrile	250	222	89	50-150 [a]
107-02-8	Acrolein	125	75.3	60	32-168
107-13-1	Acrylonitrile	125	113	90	35-130
107-05-1	Allyl chloride	25	25.6	102	50-150 [a]
71-43-2	Benzene	25	27.4	110	80-120
100-44-7	Benzyl Chloride	25	21.8	87	50-150 [a]
108-86-1	Bromobenzene	25	26.0	104	76-114
74-97-5	Bromochloromethane	25	25.8	103	75-121
75-27-4	Bromodichloromethane	25	28.2	113	75-120
75-25-2	Bromoform	25	27.7	111	60-129
104-51-8	n-Butylbenzene	25	24.8	99	76-122
135-98-8	sec-Butylbenzene	25	27.5	110	84-122
98-06-6	tert-Butylbenzene	25	27.5	110	77-124
108-90-7	Chlorobenzene	25	26.9	108	82-112
75-00-3	Chloroethane	25	31.4	126	67-148
67-66-3	Chloroform	25	29.2	117	78-118
544-10-5	1-Chlorohexane	25	26.6	106	82-130
95-49-8	o-Chlorotoluene	25	25.3	101	80-121
106-43-4	p-Chlorotoluene	25	26.0	104	78-120
110-75-8	2-Chloroethyl vinyl ether	125	125	100	23-132
75-15-0	Carbon disulfide	25	23.3	93	65-147
56-23-5	Carbon tetrachloride	25	32.0	128	69-137
75-34-3	1,1-Dichloroethane	25	27.7	111	75-117
75-35-4	1,1-Dichloroethylene	25	26.4	106	67-134
563-58-6	1,1-Dichloropropene	25	29.1	116	84-127
96-12-8	1,2-Dibromo-3-chloropropane	25	20.7	83	54-125
106-93-4	1,2-Dibromoethane	25	24.1	96	68-116
107-06-2	1,2-Dichloroethane	25	28.8	115	68-121
78-87-5	1,2-Dichloropropane	25	27.1	108	78-122
142-28-9	1,3-Dichloropropane	25	24.3	97	72-116
594-20-7	2,2-Dichloropropane	25	29.5	118	68-134
124-48-1	Dibromochloromethane	25	24.8	99	68-118
75-71-8	Dichlorodifluoromethane	25	21.7	87	43-173
156-59-2	cis-1,2-Dichloroethylene	25	25.9	104	81-120
10061-01-5	cis-1,3-Dichloropropene	25	28.4	114	73-115

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1088-BS	J026419.D	1	11/29/06	AB	n/a	n/a	VJ1088

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	25	27.2	109	50-150 [a]
541-73-1	m-Dichlorobenzene	25	26.5	106	78-116
95-50-1	o-Dichlorobenzene	25	26.8	107	77-115
106-46-7	p-Dichlorobenzene	25	25.7	103	77-113
156-60-5	trans-1,2-Dichloroethylene	25	27.6	110	74-125
10061-02-6	trans-1,3-Dichloropropene	25	26.5	106	69-115
100-41-4	Ethylbenzene	25	26.5	106	82-115
97-63-2	Ethyl methacrylate	25	21.3	85	50-150 [a]
76-13-1	Freon 113	25	26.9	108	72-148
591-78-6	2-Hexanone	125	111	89	60-125
87-68-3	Hexachlorobutadiene	25	29.6	118	62-138
110-54-3	Hexane	25	25.8	103	70-148
98-82-8	Isopropylbenzene	25	28.2	113	83-129
99-87-6	p-Isopropyltoluene	25	27.6	110	85-125
108-10-1	4-Methyl-2-pentanone	125	114	91	61-128
126-98-7	Methacrylonitrile	250	234	94	50-150 [a]
74-83-9	Methyl bromide	25	27.1	108	60-165
74-87-3	Methyl chloride	25	32.5	130	58-152
74-88-4	Methyl iodide	25	24.6	98	61-140
80-62-6	Methyl methacrylate	25	23.5	94	71-128
74-95-3	Methylene bromide	25	26.9	108	75-114
75-09-2	Methylene chloride	25	25.0	100	66-125
78-93-3	Methyl ethyl ketone	125	119	95	58-127
1634-04-4	Methyl Tert Butyl Ether	25	24.7	99	67-127
91-20-3	Naphthalene	25	21.7	87	62-129
76-01-7	Pentachloroethane	25	25.3	101	50-150 [a]
107-12-0	Propionitrile	250	241	96	50-150 [a]
103-65-1	n-Propylbenzene	25	26.7	107	80-122
100-42-5	Styrene	25	24.4	98	58-125
630-20-6	1,1,1,2-Tetrachloroethane	25	27.4	110	73-118
71-55-6	1,1,1-Trichloroethane	25	30.3	121	78-132
79-34-5	1,1,2,2-Tetrachloroethane	25	22.6	90	67-119
79-00-5	1,1,2-Trichloroethane	25	24.2	97	74-115
87-61-6	1,2,3-Trichlorobenzene	25	24.3	97	65-125
96-18-4	1,2,3-Trichloropropane	25	24.1	96	68-114
120-82-1	1,2,4-Trichlorobenzene	25	24.2	97	66-122

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1088-BS	J026419.D	1	11/29/06	AB	n/a	n/a	VJ1088

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	25	27.2	109	77-119
108-67-8	1,3,5-Trimethylbenzene	25	27.1	108	81-120
127-18-4	Tetrachloroethylene	25	29.4	118	75-126
108-88-3	Toluene	25	26.2	105	81-114
79-01-6	Trichloroethylene	25	28.1	112	80-115
75-69-4	Trichlorofluoromethane	25	28.1	112	65-163
110-57-6	Trans-1,4-Dichloro-2-Butene	25	26.9	108	38-130
75-01-4	Vinyl chloride	25	24.6	98	70-151
108-05-4	Vinyl Acetate	125	124	99	42-146
	m,p-Xylene	50	56.2	112	83-118
95-47-6	o-Xylene	25	26.2	105	77-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	107%	86-115%
17060-07-0	1,2-Dichloroethane-D4	108%	73-126%
2037-26-5	Toluene-D8	96%	86-112%
460-00-4	4-Bromofluorobenzene	95%	83-119%

(a) Advisory control limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45339-1MS	J026427.D	1	11/29/06	AB	n/a	n/a	VJ1088
F45339-1MSD	J026428.D	1	11/29/06	AB	n/a	n/a	VJ1088
F45339-1	J026425.D	1	11/29/06	AB	n/a	n/a	VJ1088

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	F45339-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		125	125	100	126	101	1	45-127/15
75-05-8	Acetonitrile	ND		250	250	100	245	98	2	50-150/30 [a]
107-02-8	Acrolein	ND		125	71.1	57	70.9	57	0	26-185/18
107-13-1	Acrylonitrile	ND		125	133	106	134	107	1	39-140/12
107-05-1	Allyl chloride	ND		25	27.2	109	26.6	106	2	50-150/30 [a]
71-43-2	Benzene	ND		25	27.6	110	27.6	110	0	72-125/7
100-44-7	Benzyl Chloride	ND		25	26.1	104	25.4	102	3	50-150/30 [a]
108-86-1	Bromobenzene	ND		25	25.4	102	25.4	102	0	72-113/10
74-97-5	Bromochloromethane	ND		25	26.0	104	25.6	102	2	73-121/9
75-27-4	Bromodichloromethane	ND		25	28.4	114	28.7	115	1	72-120/8
75-25-2	Bromoform	ND		25	28.8	115	28.5	114	1	55-127/11
104-51-8	n-Butylbenzene	ND		25	25.9	104	25.6	102	1	69-122/10
135-98-8	sec-Butylbenzene	ND		25	28.3	113	27.5	110	3	75-125/9
98-06-6	tert-Butylbenzene	ND		25	28.4	114	27.9	112	2	70-125/12
108-90-7	Chlorobenzene	ND		25	27.3	109	27.0	108	1	79-113/7
75-00-3	Chloroethane	ND		25	30.2	121	30.3	121	0	56-164/14
67-66-3	Chloroform	0.51	J	25	29.7	117	30.1	118	1	75-120/8
544-10-5	1-Chlorohexane	ND		25	27.3	109	26.9	108	1	77-127/9
95-49-8	o-Chlorotoluene	ND		25	26.9	108	26.6	106	1	76-122/9
106-43-4	p-Chlorotoluene	ND		25	27.1	108	26.7	107	1	73-120/9
110-75-8	2-Chloroethyl vinyl ether	ND		125	34.6	28	ND	0*	200*	8-137/18
75-15-0	Carbon disulfide	ND		25	25.7	103	24.8	99	4	60-151/12
56-23-5	Carbon tetrachloride	ND		25	31.5	126	31.7	127	1	56-145/12
75-34-3	1,1-Dichloroethane	ND		25	28.7	115	28.7	115	0	70-122/10
75-35-4	1,1-Dichloroethylene	ND		25	27.6	110	27.4	110	1	61-137/15
563-58-6	1,1-Dichloropropene	ND		25	29.1	116	29.0	116	0	80-126/9
96-12-8	1,2-Dibromo-3-chloropropane	ND		25	26.5	106	27.0	108	2	49-127/18
106-93-4	1,2-Dibromoethane	ND		25	26.4	106	26.4	106	0	67-113/10
107-06-2	1,2-Dichloroethane	ND		25	30.5	122	30.2	121	1	64-124/7
78-87-5	1,2-Dichloropropane	ND		25	28.1	112	27.9	112	1	74-123/8
142-28-9	1,3-Dichloropropane	ND		25	27.3	109	26.8	107	2	70-116/8
594-20-7	2,2-Dichloropropane	ND		25	29.3	117	29.0	116	1	64-133/13
124-48-1	Dibromochloromethane	ND		25	26.3	105	26.2	105	0	63-119/9
75-71-8	Dichlorodifluoromethane	ND		25	22.7	91	21.7	87	5	35-184/21
156-59-2	cis-1,2-Dichloroethylene	ND		25	26.4	106	26.5	106	0	74-125/9
10061-01-5	cis-1,3-Dichloropropene	ND		25	29.8	119*	28.7	115*	4	65-112/10

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45339-1MS	J026427.D	1	11/29/06	AB	n/a	n/a	VJ1088
F45339-1MSD	J026428.D	1	11/29/06	AB	n/a	n/a	VJ1088
F45339-1	J026425.D	1	11/29/06	AB	n/a	n/a	VJ1088

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The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	F45339-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		25	31.8	127	30.4	122	5	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		25	27.0	108	26.9	108	0	74-114/7
95-50-1	o-Dichlorobenzene	ND		25	27.5	110	27.6	110	0	73-114/8
106-46-7	p-Dichlorobenzene	ND		25	26.3	105	26.2	105	0	74-112/7
156-60-5	trans-1,2-Dichloroethylene	ND		25	28.5	114	28.3	113	1	70-127/11
10061-02-6	trans-1,3-Dichloropropene	ND		25	27.9	112	27.8	111	0	59-116/11
100-41-4	Ethylbenzene	ND		25	27.1	108	26.7	107	1	73-119/8
97-63-2	Ethyl methacrylate	ND		25	25.4	102	25.8	103	2	50-150/30 [a]
76-13-1	Freon 113	ND		25	28.6	114	27.7	111	3	67-151/14
591-78-6	2-Hexanone	ND		125	159	127	156	125	2	54-131/11
87-68-3	Hexachlorobutadiene	ND		25	27.0	108	26.4	106	2	52-133/13
110-54-3	Hexane	ND		25	27.6	110	27.0	108	2	62-153/12
98-82-8	Isopropylbenzene	ND		25	29.0	116	28.4	114	2	79-127/8
99-87-6	p-Isopropyltoluene	ND		25	28.5	114	27.7	111	3	77-126/8
108-10-1	4-Methyl-2-pentanone	ND		125	158	126	156	125	1	57-136/11
126-98-7	Methacrylonitrile	ND		250	286	114	274	110	4	50-150/30 [a]
74-83-9	Methyl bromide	ND		25	27.9	112	27.7	111	1	52-172/16
74-87-3	Methyl chloride	ND		25	38.6	154	33.5	134	14	53-155/19
74-88-4	Methyl iodide	ND		25	24.4	98	24.6	98	1	52-141/12
80-62-6	Methyl methacrylate	ND		25	27.9	112	27.6	110	1	76-115/11
74-95-3	Methylene bromide	ND		25	28.3	113	28.9	116*	2	73-115/9
75-09-2	Methylene chloride	ND		25	27.9	112	27.0	108	3	61-129/11
78-93-3	Methyl ethyl ketone	ND		125	145	116	143	114	1	51-128/10
1634-04-4	Methyl Tert Butyl Ether	ND		25	27.2	109	27.4	110	1	61-129/9
91-20-3	Naphthalene	ND		25	26.6	106	26.7	107	0	52-127/13
76-01-7	Pentachloroethane	ND		25	24.7	99	24.4	98	1	50-150/30 [a]
107-12-0	Propionitrile	ND		250	265	106	262	105	1	50-150/30 [a]
103-65-1	n-Propylbenzene	ND		25	27.6	110	27.0	108	2	73-123/10
100-42-5	Styrene	ND		25	25.4	102	25.3	101	0	64-124/11
630-20-6	1,1,1,2-Tetrachloroethane	ND		25	27.6	110	27.7	111	0	69-118/8
71-55-6	1,1,1-Trichloroethane	ND		25	30.4	122	30.0	120	1	72-133/8
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	27.1	108	26.3	105	3	64-120/10
79-00-5	1,1,2-Trichloroethane	ND		25	27.7	111	27.4	110	1	72-116/9
87-61-6	1,2,3-Trichlorobenzene	ND		25	25.9	104	26.1	104	1	58-121/12
96-18-4	1,2,3-Trichloropropane	ND		25	28.5	114	27.6	110	3	63-116/13
120-82-1	1,2,4-Trichlorobenzene	ND		25	24.8	99	25.4	102	2	58-120/11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45339-1MS	J026427.D	1	11/29/06	AB	n/a	n/a	VJ1088
F45339-1MSD	J026428.D	1	11/29/06	AB	n/a	n/a	VJ1088
F45339-1	J026425.D	1	11/29/06	AB	n/a	n/a	VJ1088

The QC reported here applies to the following samples: Method: SW846 8260B

F45339-1, F45339-2, F45339-3, F45339-4

CAS No.	Compound	F45339-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	ND		25	27.9	112	27.4	110	2	68-122/10
108-67-8	1,3,5-Trimethylbenzene	ND		25	27.8	111	27.1	108	3	70-125/9
127-18-4	Tetrachloroethylene	ND		25	27.4	110	28.1	112	3	70-126/9
108-88-3	Toluene	ND		25	27.1	108	26.5	106	2	67-123/8
79-01-6	Trichloroethylene	ND		25	27.6	110	28.3	113	3	73-117/10
75-69-4	Trichlorofluoromethane	ND		25	29.3	117	28.6	114	2	52-164/16
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		25	33.3	133*	31.5	126	6	27-131/22
75-01-4	Vinyl chloride	ND		25	24.4	98	23.6	94	3	63-161/18
108-05-4	Vinyl Acetate	ND		125	153	122	153	122	0	37-154/10
	m,p-Xylene	ND		50	58.0	116	57.9	116	0	74-123/7
95-47-6	o-Xylene	ND		25	27.2	109	26.6	106	2	68-123/7

CAS No.	Surrogate Recoveries	MS	MSD	F45339-1	Limits
1868-53-7	Dibromofluoromethane	105%	106%	112%	86-115%
17060-07-0	1,2-Dichloroethane-D4	113%	113%	116%	73-126%
2037-26-5	Toluene-D8	97%	97%	91%	86-112%
460-00-4	4-Bromofluorobenzene	98%	97%	104%	83-119%

(a) Advisory control limits.

GC/MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MB	R05994.D	1	11/22/06	ME	11/21/06	OP18583	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MB	R05994.D	1	11/22/06	ME	11/21/06	OP18583	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	35%	19-90%
4165-62-2	Phenol-d5	21%	10-68%

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MB	R05994.D	1	11/22/06	ME	11/21/06	OP18583	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	83%	36-137%
4165-60-0	Nitrobenzene-d5	71%	49-119%
321-60-8	2-Fluorobiphenyl	67%	45-118%
1718-51-0	Terphenyl-d14	79%	46-135%

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MB	R06075.D	1	11/29/06	NJ	11/21/06	OP18583	SR285

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MB	R06075.D	1	11/29/06	NJ	11/21/06	OP18583	SR285

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	34%	19-90%
4165-62-2	Phenol-d5	20%	10-68%

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MB	R06075.D	1	11/29/06	NJ	11/21/06	OP18583	SR285

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	78%	36-137%
4165-60-0	Nitrobenzene-d5	67%	49-119%
321-60-8	2-Fluorobiphenyl	64%	45-118%
1718-51-0	Terphenyl-d14	84%	46-135%

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-BS	R05993.D	1	11/22/06	ME	11/21/06	OP18583	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	100	23.3	23	10-50
95-57-8	2-Chlorophenol	50	35.3	71	57-100
59-50-7	4-Chloro-3-methyl phenol	50	39.7	79	63-105
120-83-2	2,4-Dichlorophenol	50	38.7	77	65-106
105-67-9	2,4-Dimethylphenol	50	29.7	59	49-90
51-28-5	2,4-Dinitrophenol	100	81.3	81	26-125
534-52-1	4,6-Dinitro-o-cresol	100	89.3	89	56-121
95-48-7	2-Methylphenol	50	29.8	60	48-90
	3&4-Methylphenol	100	56.9	57	43-94
88-75-5	2-Nitrophenol	50	38.4	77	62-107
100-02-7	4-Nitrophenol	100	30.8	31	19-66
87-86-5	Pentachlorophenol	100	86.6	87	62-120
108-95-2	Phenol	50	16.1	32	20-65
95-95-4	2,4,5-Trichlorophenol	50	40.3	81	67-103
88-06-2	2,4,6-Trichlorophenol	50	40.5	81	68-104
83-32-9	Acenaphthene	50	40.6	81	67-101
208-96-8	Acenaphthylene	50	39.4	79	65-100
120-12-7	Anthracene	50	42.4	85	71-103
92-87-5	Benzidine	50	16.4	33	21-101
56-55-3	Benzo(a)anthracene	50	37.1	74	71-105
50-32-8	Benzo(a)pyrene	50	41.6	83	67-106
205-99-2	Benzo(b)fluoranthene	50	42.0	84	68-108
191-24-2	Benzo(g,h,i)perylene	50	43.4	87	65-110
207-08-9	Benzo(k)fluoranthene	50	41.8	84	69-110
101-55-3	4-Bromophenyl phenyl ether	50	40.4	81	71-106
85-68-7	Butyl benzyl phthalate	50	36.4	73	66-110
100-51-6	Benzyl Alcohol	50	34.9	70	36-101
91-58-7	2-Chloronaphthalene	50	36.8	74	62-99
106-47-8	4-Chloroaniline	50	37.1	74	58-101
218-01-9	Chrysene	50	37.7	75	71-105
111-91-1	bis(2-Chloroethoxy)methane	50	34.4	69	56-101
111-44-4	bis(2-Chloroethyl)ether	50	36.3	73	60-108
108-60-1	bis(2-Chloroisopropyl)ether	50	33.0	66	49-108
7005-72-3	4-Chlorophenyl phenyl ether	50	40.7	81	69-106
95-50-1	1,2-Dichlorobenzene	50	28.6	57	48-98
541-73-1	1,3-Dichlorobenzene	50	26.0	52	44-95

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-BS	R05993.D	1	11/22/06	ME	11/21/06	OP18583	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-46-7	1,4-Dichlorobenzene	50	26.9	54	46-96
121-14-2	2,4-Dinitrotoluene	50	41.5	83	64-107
606-20-2	2,6-Dinitrotoluene	50	39.4	79	64-102
91-94-1	3,3'-Dichlorobenzidine	50	35.1	70	54-109
53-70-3	Dibenzo(a,h)anthracene	50	43.3	87	61-112
132-64-9	Dibenzofuran	50	40.0	80	70-102
84-74-2	Di-n-butyl phthalate	50	40.5	81	69-109
117-84-0	Di-n-octyl phthalate	50	40.4	81	63-125
84-66-2	Diethyl phthalate	50	41.1	82	66-111
131-11-3	Dimethyl phthalate	50	40.7	81	66-109
117-81-7	bis(2-Ethylhexyl)phthalate	50	36.9	74	66-114
206-44-0	Fluoranthene	50	43.4	87	71-108
86-73-7	Fluorene	50	42.1	84	68-102
118-74-1	Hexachlorobenzene	50	41.2	82	69-103
87-68-3	Hexachlorobutadiene	50	25.8	52	48-100
77-47-4	Hexachlorocyclopentadiene	50	17.9	36	20-85
67-72-1	Hexachloroethane	50	23.7	47	41-98
193-39-5	Indeno(1,2,3-cd)pyrene	50	43.3	87	66-112
78-59-1	Isophorone	50	40.5	81	62-105
91-57-6	2-Methylnaphthalene	50	39.2	78	62-105
88-74-4	2-Nitroaniline	50	41.7	83	66-105
99-09-2	3-Nitroaniline	50	39.2	78	56-104
100-01-6	4-Nitroaniline	50	42.0	84	62-110
91-20-3	Naphthalene	50	33.6	67	56-99
98-95-3	Nitrobenzene	50	37.2	74	60-102
621-64-7	N-Nitroso-di-n-propylamine	50	38.1	76	56-101
86-30-6	N-Nitrosodiphenylamine	50	39.4	79	69-106
85-01-8	Phenanthrene	50	42.0	84	71-104
129-00-0	Pyrene	50	37.1	74	67-108
120-82-1	1,2,4-Trichlorobenzene	50	30.5	61	52-99

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	43%	19-90%
4165-62-2	Phenol-d5	28%	10-68%

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-BS	R05993.D	1	11/22/06	ME	11/21/06	OP18583	SR281

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Surrogate Recoveries	BSP	Limits
118-79-6	2,4,6-Tribromophenol	87%	36-137%
4165-60-0	Nitrobenzene-d5	73%	49-119%
321-60-8	2-Fluorobiphenyl	72%	45-118%
1718-51-0	Terphenyl-d14	73%	46-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MS	R06007.D	1	11/23/06	ME	11/21/06	OP18583	SR282
OP18583-MSD	R06008.D	1	11/23/06	ME	11/21/06	OP18583	SR282
F45309-5	R06006.D	1	11/23/06	ME	11/21/06	OP18583	SR282

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	F45309-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		208	96.0	46	106	51	10	10-80/45
95-57-8	2-Chlorophenol	ND		104	64.3	62	75.5	72	16	43-109/27
59-50-7	4-Chloro-3-methyl phenol	ND		104	80.4	77	84.6	81	5	57-109/20
120-83-2	2,4-Dichlorophenol	ND		104	74.8	72	83.3	80	11	49-114/23
105-67-9	2,4-Dimethylphenol	ND		104	52.6	50	61.3	59	15	32-103/24
51-28-5	2,4-Dinitrophenol	ND		208	167	80	168	81	1	20-131/28
534-52-1	4,6-Dinitro-o-cresol	ND		208	179	86	181	87	1	46-130/23
95-48-7	2-Methylphenol	ND		104	58.6	56	70.9	68	19	40-102/25
	3&4-Methylphenol	ND		208	128	61	150	72	16	39-97/24
88-75-5	2-Nitrophenol	ND		104	69.7	67	81.4	78	15	46-115/26
100-02-7	4-Nitrophenol	ND		208	117	56	112	54	4	28-81/30
87-86-5	Pentachlorophenol	ND		208	182	87	185	89	2	53-128/22
108-95-2	Phenol	ND		104	47.9	46	55.7	53	15	19-81/33
95-95-4	2,4,5-Trichlorophenol	ND		104	81.7	78	83.8	80	3	56-110/19
88-06-2	2,4,6-Trichlorophenol	ND		104	79.5	76	85.8	82	8	55-112/19
83-32-9	Acenaphthene	ND		104	81.2	78	86.2	83	6	58-109/18
208-96-8	Acenaphthylene	ND		104	78.8	76	83.4	80	6	59-103/18
120-12-7	Anthracene	ND		104	85.3	82	88.2	85	3	65-108/16
92-87-5	Benzidine	ND		104	ND	0*	ND	0*	nc	11-98/21
56-55-3	Benzo(a)anthracene	ND		104	76.1	73	76.3	73	0	68-106/17
50-32-8	Benzo(a)pyrene	ND		104	84.9	82	85.2	82	0	61-108/18
205-99-2	Benzo(b)fluoranthene	ND		104	86.1	83	86.2	83	0	65-109/18
191-24-2	Benzo(g,h,i)perylene	ND		104	89.1	86	88.1	85	1	60-114/19
207-08-9	Benzo(k)fluoranthene	ND		104	85.4	82	85.4	82	0	66-111/17
101-55-3	4-Bromophenyl phenyl ether	ND		104	81.5	78	85.8	82	5	68-108/17
85-68-7	Butyl benzyl phthalate	ND		104	75.0	72	75.6	73	1	64-111/18
100-51-6	Benzyl Alcohol	ND		104	72.6	70	83.1	80	13	44-105/26
91-58-7	2-Chloronaphthalene	ND		104	74.0	71	81.4	78	10	57-102/20
106-47-8	4-Chloroaniline	ND		104	61.1	59	68.3	66	11	37-106/27
218-01-9	Chrysene	ND		104	77.4	74	76.2	73	2	69-106/17
111-91-1	bis(2-Chloroethoxy)methane	ND		104	63.9	61	72.9	70	13	46-106/24
111-44-4	bis(2-Chloroethyl)ether	ND		104	64.8	62	76.6	74	17	48-114/28
108-60-1	bis(2-Chloroisopropyl)ether	ND		104	59.8	57	72.3	69	19	43-110/26
7005-72-3	4-Chlorophenyl phenyl ether	ND		104	81.7	78	84.0	81	3	66-107/17
95-50-1	1,2-Dichlorobenzene	ND		104	65.6	63	79.8	77	20	45-103/24
541-73-1	1,3-Dichlorobenzene	ND		104	63.9	61	77.0	74	19	42-100/24

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MS	R06007.D	1	11/23/06	ME	11/21/06	OP18583	SR282
OP18583-MSD	R06008.D	1	11/23/06	ME	11/21/06	OP18583	SR282
F45309-5	R06006.D	1	11/23/06	ME	11/21/06	OP18583	SR282

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Compound	F45309-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-46-7	1,4-Dichlorobenzene	ND		104	63.8	61	77.1	74	19	43-102/24
121-14-2	2,4-Dinitrotoluene	ND		104	84.2	81	84.3	81	0	60-108/18
606-20-2	2,6-Dinitrotoluene	ND		104	80.3	77	80.6	77	0	59-105/18
91-94-1	3,3'-Dichlorobenzidine	ND		104	69.4	67	68.8	66	1	21-120/24
53-70-3	Dibenzo(a,h)anthracene	ND		104	89.5	86	89.7	86	0	59-112/18
132-64-9	Dibenzofuran	ND		104	79.9	77	83.2	80	4	65-105/17
84-74-2	Di-n-butyl phthalate	ND		104	81.6	78	82.2	79	1	68-109/18
117-84-0	Di-n-octyl phthalate	ND		104	84.2	81	85.9	82	2	59-127/23
84-66-2	Diethyl phthalate	ND		104	83.7	80	84.4	81	1	64-111/18
131-11-3	Dimethyl phthalate	ND		104	81.2	78	83.5	80	3	63-109/17
117-81-7	bis(2-Ethylhexyl)phthalate	ND		104	76.0	73	77.6	74	2	58-119/21
206-44-0	Fluoranthene	ND		104	86.8	83	87.7	84	1	68-110/18
86-73-7	Fluorene	ND		104	83.7	80	85.8	82	2	62-106/17
118-74-1	Hexachlorobenzene	ND		104	82.3	79	86.2	83	5	66-106/16
87-68-3	Hexachlorobutadiene	ND		104	64.8	62	76.7	74	17	46-107/26
77-47-4	Hexachlorocyclopentadiene	ND		104	53.5	51	66.0	63	21	16-84/31
67-72-1	Hexachloroethane	ND		104	61.7	59	74.2	71	18	39-105/25
193-39-5	Indeno(1,2,3-cd)pyrene	ND		104	89.8	86	88.9	85	1	61-115/19
78-59-1	Isophorone	ND		104	75.4	72	84.9	82	12	54-107/22
91-57-6	2-Methylnaphthalene	ND		104	76.0	73	85.0	82	11	53-112/22
88-74-4	2-Nitroaniline	ND		104	83.4	80	85.3	82	2	60-108/18
99-09-2	3-Nitroaniline	ND		104	70.8	68	67.7	65	4	43-103/23
100-01-6	4-Nitroaniline	ND		104	82.7	79	81.8	79	1	55-110/19
91-20-3	Naphthalene	ND		104	69.1	66	80.6	77	15	49-104/24
98-95-3	Nitrobenzene	ND		104	67.7	65	78.0	75	14	50-107/25
621-64-7	N-Nitroso-di-n-propylamine	ND		104	67.0	64	81.6	78	20	47-104/23
86-30-6	N-Nitrosodiphenylamine	ND		104	79.1	76	82.4	79	4	63-110/17
85-01-8	Phenanthrene	ND		104	85.9	82	87.1	84	1	67-108/17
129-00-0	Pyrene	ND		104	76.8	74	77.7	75	1	65-108/18
120-82-1	1,2,4-Trichlorobenzene	ND		104	67.1	64	78.6	75	16	49-104/25

CAS No.	Surrogate Recoveries	MS	MSD	F45309-5	Limits
367-12-4	2-Fluorophenol	51%	61%	33%	19-90%
4165-62-2	Phenol-d5	44%	50%	21%	10-68%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18583-MS	R06007.D	1	11/23/06	ME	11/21/06	OP18583	SR282
OP18583-MSD	R06008.D	1	11/23/06	ME	11/21/06	OP18583	SR282
F45309-5	R06006.D	1	11/23/06	ME	11/21/06	OP18583	SR282

The QC reported here applies to the following samples: Method: SW846 8270C

F45339-1, F45339-2

CAS No.	Surrogate Recoveries	MS	MSD	F45309-5	Limits
118-79-6	2,4,6-Tribromophenol	81%	84%	82%	36-137%
4165-60-0	Nitrobenzene-d5	63%	73%	59%	49-119%
321-60-8	2-Fluorobiphenyl	67%	74%	58%	45-118%
1718-51-0	Terphenyl-d14	65%	67%	57%	46-135%

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18576-MB	TT03825.D	1	12/01/06	VS	11/20/06	OP18576	GTT134

The QC reported here applies to the following samples: Method: SW846 8081A

F45339-1, F45339-2

7.1

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CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.050	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.050	0.015	ug/l	
319-85-7	beta-BHC	ND	0.050	0.020	ug/l	
319-86-8	delta-BHC	ND	0.050	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.050	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.050	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.050	0.015	ug/l	
60-57-1	Dieldrin	ND	0.050	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.10	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.10	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.10	0.020	ug/l	
72-20-8	Endrin	ND	0.10	0.040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.10	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.10	0.040	ug/l	
53494-70-5	Endrin ketone	ND	0.10	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.050	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.10	0.020	ug/l	
76-44-8	Heptachlor	ND	0.050	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.050	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.10	0.040	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.3	ug/l	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	121%	60-138%
2051-24-3	Decachlorobiphenyl	107%	31-148%

Blank Spike Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18576-BS	TT03824.D	1	12/01/06	VS	11/20/06	OP18576	GTT134

The QC reported here applies to the following samples: Method: SW846 8081A

F45339-1, F45339-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
309-00-2	Aldrin	0.5	0.56	112	70-127
319-84-6	alpha-BHC	0.5	0.58	116	65-136
319-85-7	beta-BHC	0.5	0.55	110	68-133
319-86-8	delta-BHC	0.5	0.38	76	48-126
58-89-9	gamma-BHC (Lindane)	0.5	0.56	112	69-137
5103-71-9	alpha-Chlordane	0.5	0.58	116	74-127
5103-74-2	gamma-Chlordane	0.5	0.61	122	75-130
60-57-1	Dieldrin	0.5	0.58	116	76-131
72-54-8	4,4'-DDD	0.5	0.60	120	76-140
72-55-9	4,4'-DDE	0.5	0.59	118	73-137
50-29-3	4,4'-DDT	0.5	0.47	94	74-134
72-20-8	Endrin	0.5	0.61	122	78-134
1031-07-8	Endosulfan sulfate	0.5	0.53	106	73-127
7421-93-4	Endrin aldehyde	0.5	0.097	19	5-104
53494-70-5	Endrin ketone	0.5	0.52	104	80-128
959-98-8	Endosulfan-I	0.5	0.56	112	76-128
33213-65-9	Endosulfan-II	0.5	0.56	112	77-131
76-44-8	Heptachlor	0.5	0.51	102	62-137
1024-57-3	Heptachlor epoxide	0.5	0.57	114	74-130
72-43-5	Methoxychlor	0.5	0.49	98	77-131

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	102%	60-138%
2051-24-3	Decachlorobiphenyl	101%	31-148%

7.2

7

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45339
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18576-MS	TT03830.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
OP18576-MSD	TT03831.D	1	12/01/06	VS	11/20/06	OP18576	GTT134
F45339-1	TT03829.D	1	12/01/06	VS	11/20/06	OP18576	GTT134

The QC reported here applies to the following samples: Method: SW846 8081A

F45339-1, F45339-2

7.3

CAS No.	Compound	F45339-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
309-00-2	Aldrin	ND		1	0.95	95	0.84	84	12	73-135/25
319-84-6	alpha-BHC	ND		1	1.1	110	1.1	110	0	75-134/24
319-85-7	beta-BHC	ND		1	1.1	110	0.98	98	12	73-141/23
319-86-8	delta-BHC	ND		1	0.70	70	0.61	61	14	29-148/32
58-89-9	gamma-BHC (Lindane)	ND		1	1.1	110	1.0	100	10	75-140/21
5103-71-9	alpha-Chlordane	ND		1	0.98	98	0.85	85	14	73-135/22
5103-74-2	gamma-Chlordane	ND		1	0.99	99	0.87	87	13	74-138/26
60-57-1	Dieldrin	ND		1	1.1	110	1.0	100	10	74-141/23
72-54-8	4,4'-DDD	ND		1	1.0	100	0.93	93	7	81-142/24
72-55-9	4,4'-DDE	ND		1	0.88	88	0.75	75*	16	77-139/26
50-29-3	4,4'-DDT	ND		1	0.68	68	0.56	56*	19	65-147/29
72-20-8	Endrin	ND		1	1.1	110	1.0	100	10	72-149/21
1031-07-8	Endosulfan sulfate	ND		1	0.96	96	0.83	83	15	66-140/31
7421-93-4	Endrin aldehyde	ND		1	0.19	19	0.086	9	75*	5-113/49
53494-70-5	Endrin ketone	ND		1	0.93	93	0.87	87	7	75-138/25
959-98-8	Endosulfan-I	ND		1	1.1	110	0.97	97	13	74-139/21
33213-65-9	Endosulfan-II	ND		1	1.1	110	0.96	96	14	70-145/25
76-44-8	Heptachlor	ND		1	0.89	89	0.82	82	8	74-136/25
1024-57-3	Heptachlor epoxide	ND		1	1.0	100	0.96	96	4	75-138/21
72-43-5	Methoxychlor	ND		1	0.73	73	0.62	62*	16	69-145/27

CAS No.	Surrogate Recoveries	MS	MSD	F45339-1	Limits
877-09-8	Tetrachloro-m-xylene	102%	95%	98%	60-138%
2051-24-3	Decachlorobiphenyl	60%	54%	52%	31-148%

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10729
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 11/20/06

Metal	RL	IDL	MB raw	final
Mercury	1.0	.08	0.076	<1.0

Associated samples MP10729: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10729
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 11/20/06 11/20/06

Metal	F45309-5 Original	DUP	RPD	QC Limits	F45309-5 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.0	0.0	NC	0-10	0.0	3.0	3	100.0	70-130

Associated samples MP10729: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10729
Matrix Type: AQUEOUS

Methods: EPA 245.1
Units: ug/l

Prep Date: 11/20/06

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	2.9	3	96.7	85-115

Associated samples MP10729: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.3

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10750
Matrix Type: AQUEOUS

Methods: EPA 200.7, SW846 6010B
Units: ug/l

Prep Date: 11/21/06

Metal	RL	IDL	MB raw	final
Aluminum	200	18	anr	
Antimony	6.0	3.4	anr	
Arsenic	10	2.8	0.11	<10
Barium	200	5	0.030	<200
Beryllium	4.0	1	anr	
Cadmium	5.0	1	0.080	<5.0
Calcium	1000	42	anr	
Chromium	10	.6	-0.21	<10
Cobalt	50	1	anr	
Copper	25	.9	anr	
Iron	300	12	anr	
Lead	5.0	1.7	1.2	<5.0
Magnesium	5000	4.3	anr	
Manganese	15	.6	anr	
Molybdenum	50	1.3		
Nickel	40	1	anr	
Potassium	10000	10	anr	
Selenium	10	2	0.98	<10
Silver	10	.9	-0.17	<10
Sodium	10000	500	anr	
Thallium	20	2.3	anr	
Tin	50	3.1		
Vanadium	50	.6	anr	
Zinc	20	1.3	anr	

Associated samples MP10750: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.1 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10750
Matrix Type: AQUEOUS

Methods: EPA 200.7, SW846 6010B
Units: ug/l

Prep Date:			11/21/06					11/21/06	
Metal	F45309-5 Original	DUP	RPD	QC Limits	F45309-5 Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum	anr								
Antimony	anr								
Arsenic	0.0	0.0	NC	0-20	0.0	2230	2000	111.5	70-130
Barium	14.6	14.8	1.4	0-20	14.6	2030	2000	100.8	70-130
Beryllium	anr								
Cadmium	0.0	0.0	NC	0-20	0.0	45.5	50	91.0	70-130
Calcium	anr								
Chromium	0.77	0.85	9.9	0-20	0.77	193	200	96.1	70-130
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	0.0	0.0	NC	0-20	0.0	458	500	91.6	70-130
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Potassium	anr								
Selenium	0.0	0.0 (a)	NC	0-20	0.0	2170	2000	108.5	70-130
Silver	0.94	0.0	200.0(b)	0-20	0.94	60.8	50	119.7	70-130
Sodium	anr								
Thallium	anr								
Tin									
Vanadium	anr								
Zinc	anr								

Associated samples MP10750: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Elevated reporting limit(s) due to matrix interference.
(b) RPD acceptable due to low duplicate and sample concentrations.

8.2.2

8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10750
Matrix Type: AQUEOUS

Methods: EPA 200.7, SW846 6010B
Units: ug/l

Prep Date: 11/21/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	1980	2000	99.0	85-115
Barium	2040	2000	102.0	85-115
Beryllium	anr			
Cadmium	49.7	50	99.4	85-115
Calcium	anr			
Chromium	209	200	104.5	85-115
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	508	500	101.6	85-115
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium	anr			
Selenium	1870	2000	93.5	85-115
Silver	51.8	50	103.6	85-115
Sodium	anr			
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP10750: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.3

SERIAL DILUTION RESULTS SUMMARY

Login Number: F45339
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10750
Matrix Type: AQUEOUS

Methods: EPA 200.7, SW846 6010B
Units: ug/l

Prep Date: 11/21/06

Metal	F45309-5 Original	SDL 1:5	RPD	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	0.00	0.00	NC	0-10
Barium	14.6	0.00	100.0(a)	0-10
Beryllium	anr			
Cadmium	0.00	0.00	NC	0-10
Calcium	anr			
Chromium	0.770	0.00	100.0(a)	0-10
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	0.00	0.00	NC	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silver	0.940	0.00	100.0(a)	0-10
Sodium	anr			
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP10750: F45339-1, F45339-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

8.2.4

8

GROUNDWATER

F45658

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

04/11/07

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F45658

Sampling Date: 12/01/06

Report to:

Bhate Environmental Associates, Inc.

MOlive@bhate.com

ATTN: Marcia Olive

Total number of pages in report: 57

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Accutest Laboratories

Sample Summary

Bhate Environmental Associates, Inc.

Job No: F45658

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F45658-1	12/01/06	12:30 TL	12/02/06	AQ	Ground Water	SD08-MW08-07
F45658-2	12/01/06	12:30 TL	12/02/06	AQ	Trip Blank Water	TRIP BLANK

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F45658

Site: HOLMN **Report Date** 12/20/2006 1:51:05

1 Sample, 1 Trip Blank were collected on 12/01/2006 and received at Accutest on 12/02/2006 properly preserved, at 3.4 Deg. C and intact. These Samples received an Accutest job number of F45658. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VJ1098

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45800-1MS, F45800-1MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for 1,1,2-Trichloroethane, 1,2-Dibromo-3-chloropropane, m-Dichlorobenzene, Toluene are outside control limits. Probable cause due to matrix interference. For method performance in clean matrix see Blank Spike.

MS/MSD Recovery(s) for 2-Chloroethyl vinyl ether are outside control limits due to preservation. See Blank Spike.

Matrix Spike Recovery(s) for m,p-Xylene, o-Xylene are outside control limits. Outside control limits due to high level in sample relative to spike amount.

RPD(s) for MSD for 1,1,2-Trichloroethane, 1,2,3-Trichlorobenzene, Naphthalene are outside control limits for sample F45800-1MSD. Probable cause due to sample homogeneity.

Sample(s) F45658-1 have surrogates outside control limits. Probable cause due to matrix interference.

F45658-1 for 1,2-Dichloroethane-D4: Outside control limits; confirmed by reanalysis.

F45658-1 for Dibromofluoromethane: Outside control limits; confirmed by reanalysis.

Matrix: AQ **Batch ID:** VM698

All method blanks for this batch meet method specific criteria.

Sample(s) F45873-22MS, F45873-22MSD were used as the QC samples indicated.

Sample(s) F45658-1 have surrogates outside control limits. Probable cause due to matrix interference.

Extractables by GCMS By Method SW846 8270C

Matrix: AQ **Batch ID:** OP18780

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) F45717-1MS, F45717-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

MS/MSD Recovery(s) for Benzidine are outside control limits. Probable cause due to matrix interference.

RPD(s) for MSD for Benzoic Acid are outside control limits for sample OP18780-MSD. Probable cause due to sample homogeneity.

Extractables by GC By Method SW846 8081A

Matrix: AQ **Batch ID:** OP18785

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

F45658-1: All hits confirmed by dual column analysis.

OP18785-BS: Insufficient sample for MS/MSD.

Metals By Method SW846 6010B

Matrix: AQ **Batch ID:** MP10806

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45653-18DUP, F45653-18MS, F45653-18MSD, F45653-18SDL were used as the QC samples for metals.

RPD(s) for Serial Dilution for Barium, Chromium, Lead are outside control limits for sample MP10806-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals By Method SW846 7470A

Matrix: AQ **Batch ID:** MP10803

All samples were digested within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F45653-18DUP, F45653-18MS, F45653-18SDL were used as the QC samples for metals.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: December 20, 2006

Svetlana Izosimova, QAO (signature on file)

Narrative prepared by:

Date: April 11, 2007

Ellen Pampel, Inorganic QA (signature on file)

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026658.D	1	12/14/06	JG	n/a	n/a	VJ1098
Run #2	M0016849.D	1	12/15/06	CS	n/a	n/a	VM698

	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	54.7 [a]	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	1.6 [a]	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	117% [b]	91%	86-115%
17060-07-0	1,2-Dichloroethane-D4	127% [b]	92%	73-126%
2037-26-5	Toluene-D8	92%	106%	86-112%
460-00-4	4-Bromofluorobenzene	98%	103%	83-119%

(a) Result is from Run# 2
(b) Outside control limits; confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L035221.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
Run #2							

	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	9.8	ug/l	
95-57-8	2-Chlorophenol	ND	4.9	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.9	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	4.9	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.9	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	9.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	9.8	4.9	ug/l	
95-48-7	2-Methylphenol	ND	4.9	2.0	ug/l	
	3&4-Methylphenol	ND	4.9	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	4.9	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	9.8	ug/l	
87-86-5	Pentachlorophenol	ND	25	9.8	ug/l	
108-95-2	Phenol	ND	4.9	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.9	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.9	2.0	ug/l	
83-32-9	Acenaphthene	ND	4.9	0.98	ug/l	
208-96-8	Acenaphthylene	ND	4.9	0.98	ug/l	
120-12-7	Anthracene	ND	4.9	0.98	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	4.9	0.98	ug/l	
50-32-8	Benzo(a)pyrene	ND	4.9	0.98	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	4.9	0.98	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	4.9	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	4.9	0.98	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	4.9	0.98	ug/l	
85-68-7	Butyl benzyl phthalate	ND	4.9	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	4.9	0.98	ug/l	
91-58-7	2-Chloronaphthalene	ND	4.9	0.98	ug/l	
106-47-8	4-Chloroaniline	ND	9.8	3.9	ug/l	
218-01-9	Chrysene	ND	4.9	0.98	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	4.9	0.98	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	4.9	2.0	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	bis(2-Chloroisopropyl)ether	ND	4.9	0.98	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	4.9	0.98	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	4.9	0.98	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	4.9	0.98	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	4.9	0.98	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	4.9	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	4.9	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	9.8	4.9	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	4.9	2.0	ug/l	
132-64-9	Dibenzofuran	ND	4.9	0.98	ug/l	
84-74-2	Di-n-butyl phthalate	ND	4.9	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	4.9	2.5	ug/l	
84-66-2	Diethyl phthalate	11.1	4.9	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	4.9	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	4.9	2.5	ug/l	
206-44-0	Fluoranthene	ND	4.9	0.98	ug/l	
86-73-7	Fluorene	ND	4.9	0.98	ug/l	
118-74-1	Hexachlorobenzene	ND	4.9	0.98	ug/l	
87-68-3	Hexachlorobutadiene	ND	4.9	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	4.9	2.0	ug/l	
67-72-1	Hexachloroethane	ND	4.9	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.9	2.0	ug/l	
78-59-1	Isophorone	ND	4.9	0.98	ug/l	
91-57-6	2-Methylnaphthalene	ND	4.9	0.98	ug/l	
88-74-4	2-Nitroaniline	ND	9.8	3.9	ug/l	
99-09-2	3-Nitroaniline	ND	9.8	3.9	ug/l	
100-01-6	4-Nitroaniline	ND	9.8	3.9	ug/l	
91-20-3	Naphthalene	ND	4.9	0.98	ug/l	
98-95-3	Nitrobenzene	ND	4.9	0.98	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	4.9	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.9	2.0	ug/l	
85-01-8	Phenanthrene	ND	4.9	0.98	ug/l	
129-00-0	Pyrene	ND	4.9	0.98	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	4.9	0.98	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	30%		19-90%
4165-62-2	Phenol-d5	18%		10-68%
118-79-6	2,4,6-Tribromophenol	68%		36-137%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8270C SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

ABN Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	57%		49-119%
321-60-8	2-Fluorobiphenyl	58%		45-118%
1718-51-0	Terphenyl-d14	65%		46-135%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
Method:	SW846 8081A SW846 3510C	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	TT04406.D	1	12/18/06	KL	12/08/06	OP18785	GTT149
Run #2							

	Initial Volume	Final Volume
Run #1	1030 ml	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.049	0.019	ug/l	
319-84-6	alpha-BHC	ND	0.049	0.015	ug/l	
319-85-7	beta-BHC	ND	0.049	0.019	ug/l	
319-86-8	delta-BHC	ND	0.049	0.019	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.049	0.015	ug/l	
5103-71-9	alpha-Chlordane	0.016	0.049	0.015	ug/l	J
5103-74-2	gamma-Chlordane	0.030	0.049	0.015	ug/l	J
60-57-1	Dieldrin	ND	0.049	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.097	0.019	ug/l	
72-55-9	4,4'-DDE	ND	0.097	0.019	ug/l	
50-29-3	4,4'-DDT	ND	0.097	0.019	ug/l	
72-20-8	Endrin	ND	0.097	0.039	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.097	0.019	ug/l	
7421-93-4	Endrin aldehyde	ND	0.097	0.039	ug/l	
53494-70-5	Endrin ketone	ND	0.097	0.019	ug/l	
959-98-8	Endosulfan-I	ND	0.049	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.097	0.019	ug/l	
76-44-8	Heptachlor	ND	0.049	0.019	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.049	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.097	0.039	ug/l	
8001-35-2	Toxaphene	ND	2.4	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		60-138%
2051-24-3	Decachlorobiphenyl	37%		31-148%

(a) All hits confirmed by dual column analysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
		Percent Solids:	n/a
Project:	HOLMN		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	4.8 J	10	2.8	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]
Barium	28.0 J	200	5.0	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]
Cadmium	1.0 U	5.0	1.0	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]
Chromium	0.70 J	10	0.60	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]
Lead	1.8 J	5.0	1.7	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]
Mercury	0.10 U	1.0	0.10	ug/l	1	12/06/06	12/06/06	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	2.8 U	10	2.8	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]
Silver	1.1 J	10	0.90	ug/l	1	12/06/06	12/06/06	RS	SW846 6010B [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA5383
(2) Instrument QC Batch: MA5384
(3) Prep QC Batch: MP10803
(4) Prep QC Batch: MP10806

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45658-2	Date Sampled:	12/01/06
Matrix:	AQ - Trip Blank Water	Date Received:	12/02/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J026659.D	1	12/14/06	JG	n/a	n/a	VJ1098
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45658-2	Date Sampled:	12/01/06
Matrix:	AQ - Trip Blank Water	Date Received:	12/02/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	2.5	5.0	1.0	ug/l	J
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	F45658-2	Date Sampled:	12/01/06
Matrix:	AQ - Trip Blank Water	Date Received:	12/02/06
Method:	SW846 8260B	Percent Solids:	n/a
Project:	HOLMN		

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%		86-115%
17060-07-0	1,2-Dichloroethane-D4	118%		73-126%
2037-26-5	Toluene-D8	92%		86-112%
460-00-4	4-Bromofluorobenzene	99%		83-119%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F45658

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 12120061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Sample Analyte Requested [3] — Quality Assurance Sampling [6]

Field Sample ID (20 Character Max)	SEPIMS LOCID (12 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (MilitaryS (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [5]	Sample Matrix [4]	Number of containers	VOC 8260	SVOC 8270	Pest 8081	RCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
SD08-MW08-07	SD08-MW08-7	01/12/06	1230	0' 0'	N	1	WG	8	X	X	X	X								1
Trip Blank	Field QC	01/12/06	1230		TB		WQ	1	X											1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet-ernskovine@planet.com;mdauban@bhate.com

Custody Transfer Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	12-1-2006	1600	1. FX	12/02/06	
2.			2. Jorge Bonal		0900
3. FX			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-t) Sample, FR = Field Replicate (-t) Sample, EB = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-a)

3) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4) Matrix Codes: OS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

3.4

4.1

4

F45658: Chain of Custody
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ACCUTEST Laboratories

F45658

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F45658 CLIENT: BHATC PROJECT: SD 08

DATE/TIME RECEIVED: 12/02/06 09:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 3.4

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8545 9102 9580

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [x] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

MISC. INFORMATION

NUMBER OF ENCORES ? 0

NUMBER OF 5035 FIELD KITS ? 0

NUMBER OR LAB FILTERED METALS ? 0

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE 12/02/06 TECHNICIAN SIGNATURE/DATE 12-02-06 ASBD 10/03/06

4.1 4

F45658: Chain of Custody
Page 2 of 3

ACCUTEST. **Job Change Order** F45658_12/15/20

Requested Date:	12/15/2006	**Received Date:**	12/1/2006
Account Name:	Bhate Environmental Associates,	**Due Date:**	12/15/2006
Project Description:	HOLMN	**Deliverable:**	COMMBN
CSR:	TM	**TAT (Days):**	14

Sample #:	**Change:**
F45658--1	Per client please login sample for TDS

Above Changes Per: Jim Moore-BHATE **Date:** 12/15/2006

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

Page 1 of 1

GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1098-MB	J026638.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	25	5.0	ug/l	
75-05-8	Acetonitrile	ND	20	10	ug/l	
107-02-8	Acrolein	ND	20	10	ug/l	
107-13-1	Acrylonitrile	ND	10	5.0	ug/l	
107-05-1	Allyl chloride	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	1.0	0.50	ug/l	
100-44-7	Benzyl Chloride	ND	1.0	0.50	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.50	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.50	ug/l	
75-25-2	Bromoform	ND	1.0	0.50	ug/l	
104-51-8	n-Butylbenzene	ND	1.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	1.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	1.0	0.50	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.50	ug/l	
75-00-3	Chloroethane	ND	2.0	1.0	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
544-10-5	1-Chlorohexane	ND	2.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	1.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	1.0	0.50	ug/l	
110-75-8	2-Chloroethyl vinyl ether	ND	5.0	2.5	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.0	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.50	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.30	ug/l	

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1098-MB	J026638.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	Result	RL	MDL	Units	Q
1476-11-5	cis-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.50	ug/l	
97-63-2	Ethyl methacrylate	ND	5.0	2.0	ug/l	
76-13-1	Freon 113	ND	1.0	0.50	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.5	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.50	ug/l	
110-54-3	Hexane	ND	2.0	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	1.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	5.0	2.5	ug/l	
126-98-7	Methacrylonitrile	ND	20	10	ug/l	
74-83-9	Methyl bromide	ND	2.0	1.0	ug/l	
74-87-3	Methyl chloride	ND	2.0	1.0	ug/l	
74-88-4	Methyl iodide	ND	5.0	2.5	ug/l	
80-62-6	Methyl methacrylate	ND	5.0	2.5	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.50	ug/l	
75-09-2	Methylene chloride	ND	5.0	1.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	5.0	2.5	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.50	ug/l	
91-20-3	Naphthalene	ND	2.0	1.0	ug/l	
76-01-7	Pentachloroethane	ND	10	5.0	ug/l	
107-12-0	Propionitrile	ND	20	10	ug/l	
103-65-1	n-Propylbenzene	ND	1.0	0.50	ug/l	
100-42-5	Styrene	ND	1.0	0.50	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.50	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1098-MB	J026638.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.50	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.50	ug/l	
110-57-6	Trans-1,4-Dichloro-2-Butene	ND	10	5.0	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.50	ug/l	
108-05-4	Vinyl Acetate	ND	10	5.0	ug/l	
	m,p-Xylene	ND	2.0	0.50	ug/l	
95-47-6	o-Xylene	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	110%	86-115%
17060-07-0	1,2-Dichloroethane-D4	106%	73-126%
2037-26-5	Toluene-D8	93%	86-112%
460-00-4	4-Bromofluorobenzene	97%	83-119%

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM698-MB	M0016834.D	1	12/15/06	CS	n/a	n/a	VM698

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1

CAS No.	Compound	Result	RL	MDL	Units	Q
107-06-2	1,2-Dichloroethane	ND	1.0	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	86-115%
17060-07-0	1,2-Dichloroethane-D4	92%	73-126%
2037-26-5	Toluene-D8	107%	86-112%
460-00-4	4-Bromofluorobenzene	104%	83-119%

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1098-BS	J026637.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	125	131	105	44-142
75-05-8	Acetonitrile	250	167	67	50-150 [a]
107-02-8	Acrolein	125	100	80	32-168
107-13-1	Acrylonitrile	125	117	94	35-130
107-05-1	Allyl chloride	25	9.5	38*	50-150 [a]
71-43-2	Benzene	25	25.6	102	80-120
100-44-7	Benzyl Chloride	25	24.8	99	50-150 [a]
108-86-1	Bromobenzene	25	24.9	100	76-114
74-97-5	Bromochloromethane	25	24.6	98	75-121
75-27-4	Bromodichloromethane	25	24.5	98	75-120
75-25-2	Bromoform	25	24.0	96	60-129
104-51-8	n-Butylbenzene	25	26.5	106	76-122
135-98-8	sec-Butylbenzene	25	25.9	104	84-122
98-06-6	tert-Butylbenzene	25	26.0	104	77-124
108-90-7	Chlorobenzene	25	25.1	100	82-112
75-00-3	Chloroethane	25	22.9	92	67-148
67-66-3	Chloroform	25	26.1	104	78-118
544-10-5	1-Chlorohexane	25	28.0	112	82-130
95-49-8	o-Chlorotoluene	25	25.3	101	80-121
106-43-4	p-Chlorotoluene	25	25.5	102	78-120
110-75-8	2-Chloroethyl vinyl ether	125	133	106	23-132
75-15-0	Carbon disulfide	25	28.4	114	65-147
56-23-5	Carbon tetrachloride	25	28.2	113	69-137
75-34-3	1,1-Dichloroethane	25	26.5	106	75-117
75-35-4	1,1-Dichloroethylene	25	26.0	104	67-134
563-58-6	1,1-Dichloropropene	25	26.5	106	84-127
96-12-8	1,2-Dibromo-3-chloropropane	25	23.5	94	54-125
106-93-4	1,2-Dibromoethane	25	24.8	99	68-116
107-06-2	1,2-Dichloroethane	25	25.9	104	68-121
78-87-5	1,2-Dichloropropane	25	25.5	102	78-122
142-28-9	1,3-Dichloropropane	25	24.5	98	72-116
594-20-7	2,2-Dichloropropane	25	26.5	106	68-134
124-48-1	Dibromochloromethane	25	24.4	98	68-118
75-71-8	Dichlorodifluoromethane	25	24.5	98	43-173
156-59-2	cis-1,2-Dichloroethylene	25	24.4	98	81-120
10061-01-5	cis-1,3-Dichloropropene	25	26.4	106	73-115

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1098-BS	J026637.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
1476-11-5	cis-1,4-Dichloro-2-Butene	25	26.3	105	50-150 [a]
541-73-1	m-Dichlorobenzene	25	25.8	103	78-116
95-50-1	o-Dichlorobenzene	25	25.3	101	77-115
106-46-7	p-Dichlorobenzene	25	25.2	101	77-113
156-60-5	trans-1,2-Dichloroethylene	25	26.0	104	74-125
10061-02-6	trans-1,3-Dichloropropene	25	27.1	108	69-115
100-41-4	Ethylbenzene	25	24.9	100	82-115
97-63-2	Ethyl methacrylate	25	24.3	97	50-150 [a]
76-13-1	Freon 113	25	27.6	110	72-148
591-78-6	2-Hexanone	125	130	104	60-125
87-68-3	Hexachlorobutadiene	25	26.0	104	62-138
110-54-3	Hexane	25	27.0	108	70-148
98-82-8	Isopropylbenzene	25	27.0	108	83-129
99-87-6	p-Isopropyltoluene	25	25.8	103	85-125
108-10-1	4-Methyl-2-pentanone	125	131	105	61-128
126-98-7	Methacrylonitrile	250	200	80	50-150 [a]
74-83-9	Methyl bromide	25	23.2	93	60-165
74-87-3	Methyl chloride	25	32.0	128	58-152
74-88-4	Methyl iodide	25	26.2	105	61-140
80-62-6	Methyl methacrylate	25	21.9	88	71-128
74-95-3	Methylene bromide	25	25.8	103	75-114
75-09-2	Methylene chloride	25	24.8	99	66-125
78-93-3	Methyl ethyl ketone	125	121	97	58-127
1634-04-4	Methyl Tert Butyl Ether	25	25.4	102	67-127
91-20-3	Naphthalene	25	25.3	101	62-129
76-01-7	Pentachloroethane	25	26.3	105	50-150 [a]
107-12-0	Propionitrile	250	218	87	50-150 [a]
103-65-1	n-Propylbenzene	25	25.8	103	80-122
100-42-5	Styrene	25	25.6	102	58-125
630-20-6	1,1,1,2-Tetrachloroethane	25	25.0	100	73-118
71-55-6	1,1,1-Trichloroethane	25	27.1	108	78-132
79-34-5	1,1,2,2-Tetrachloroethane	25	24.1	96	67-119
79-00-5	1,1,2-Trichloroethane	25	24.6	98	74-115
87-61-6	1,2,3-Trichlorobenzene	25	26.8	107	65-125
96-18-4	1,2,3-Trichloropropane	25	23.8	95	68-114
120-82-1	1,2,4-Trichlorobenzene	25	25.8	103	66-122

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VJ1098-BS	J026637.D	1	12/13/06	JG	n/a	n/a	VJ1098

5.2 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	25	25.4	102	77-119
108-67-8	1,3,5-Trimethylbenzene	25	25.6	102	81-120
127-18-4	Tetrachloroethylene	25	27.0	108	75-126
108-88-3	Toluene	25	25.3	101	81-114
79-01-6	Trichloroethylene	25	25.8	103	80-115
75-69-4	Trichlorofluoromethane	25	24.4	98	65-163
110-57-6	Trans-1,4-Dichloro-2-Butene	25	26.5	106	38-130
75-01-4	Vinyl chloride	25	23.5	94	70-151
108-05-4	Vinyl Acetate	125	119	95	42-146
	m,p-Xylene	50	51.4	103	83-118
95-47-6	o-Xylene	25	25.5	102	77-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	102%	86-115%
17060-07-0	1,2-Dichloroethane-D4	103%	73-126%
2037-26-5	Toluene-D8	100%	86-112%
460-00-4	4-Bromofluorobenzene	99%	83-119%

(a) Advisory control limits.

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM698-BS	M0016833.D	1	12/15/06	CS	n/a	n/a	VM698

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
107-06-2	1,2-Dichloroethane	25	23.5	94	68-121
78-87-5	1,2-Dichloropropane	25	25.2	101	78-122

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	86-115%
17060-07-0	1,2-Dichloroethane-D4	95%	73-126%
2037-26-5	Toluene-D8	105%	86-112%
460-00-4	4-Bromofluorobenzene	101%	83-119%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45800-1MS	J026648.D	1	12/13/06	JG	n/a	n/a	VJ1098
F45800-1MSD	J026649.D	1	12/13/06	JG	n/a	n/a	VJ1098
F45800-1	J026647.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	F45800-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		125	154	123	146	117	5	45-127/15
75-05-8	Acetonitrile	ND		250	184	74	167	67	10	50-150/30 [a]
107-02-8	Acrolein	ND		125	109	87	111	89	2	26-185/18
107-13-1	Acrylonitrile	ND		125	143	114	134	107	6	39-140/12
107-05-1	Allyl chloride	ND		25	8.7	35*	8.5	34*	2	50-150/30 [a]
71-43-2	Benzene	54.5		25	79.6	100	77.9	94	2	72-125/7
100-44-7	Benzyl Chloride	ND		25	24.6	98	22.5	90	9	50-150/30 [a]
108-86-1	Bromobenzene	ND		25	27.0	108	25.8	103	5	72-113/10
74-97-5	Bromochloromethane	ND		25	24.8	99	23.6	94	5	73-121/9
75-27-4	Bromodichloromethane	ND		25	25.5	102	24.6	98	4	72-120/8
75-25-2	Bromoform	ND		25	26.5	106	25.7	103	3	55-127/11
104-51-8	n-Butylbenzene	6.7		25	34.6	112	33.4	107	4	69-122/10
135-98-8	sec-Butylbenzene	7.3		25	36.1	115	35.4	112	2	75-125/9
98-06-6	tert-Butylbenzene	0.96	J	25	31.0	120	30.5	118	2	70-125/12
108-90-7	Chlorobenzene	ND		25	26.0	104	25.5	102	2	79-113/7
75-00-3	Chloroethane	ND		25	24.2	97	23.6	94	3	56-164/14
67-66-3	Chloroform	ND		25	27.5	110	26.8	107	3	75-120/8
544-10-5	1-Chlorohexane	ND		25	29.0	116	28.2	113	3	77-127/9
95-49-8	o-Chlorotoluene	ND		25	28.5	114	28.9	116	1	76-122/9
106-43-4	p-Chlorotoluene	ND		25	29.5	118	28.8	115	2	73-120/9
110-75-8	2-Chloroethyl vinyl ether	ND		125	ND	0*	ND	0*	nc	8-137/18
75-15-0	Carbon disulfide	ND		25	27.8	111	26.8	107	4	60-151/12
56-23-5	Carbon tetrachloride	ND		25	29.4	118	29.0	116	1	56-145/12
75-34-3	1,1-Dichloroethane	ND		25	27.2	109	26.5	106	3	70-122/10
75-35-4	1,1-Dichloroethylene	ND		25	26.7	107	25.5	102	5	61-137/15
563-58-6	1,1-Dichloropropene	ND		25	27.3	109	26.0	104	5	80-126/9
96-12-8	1,2-Dibromo-3-chloropropane	ND		25	33.8	135*	29.7	119	13	49-127/18
106-93-4	1,2-Dibromoethane	ND		25	26.6	106	25.9	104	3	67-113/10
107-06-2	1,2-Dichloroethane	ND		25	28.2	113	26.7	107	5	64-124/7
78-87-5	1,2-Dichloropropane	ND		25	25.8	103	25.5	102	1	74-123/8
142-28-9	1,3-Dichloropropane	ND		25	26.1	104	25.6	102	2	70-116/8
594-20-7	2,2-Dichloropropane	ND		25	24.6	98	24.1	96	2	64-133/13
124-48-1	Dibromochloromethane	ND		25	26.5	106	25.4	102	4	63-119/9
75-71-8	Dichlorodifluoromethane	ND		25	24.1	96	23.2	93	4	35-184/21
156-59-2	cis-1,2-Dichloroethylene	ND		25	24.0	96	23.1	92	4	74-125/9
10061-01-5	cis-1,3-Dichloropropene	ND		25	26.0	104	24.9	100	4	65-112/10

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45800-1MS	J026648.D	1	12/13/06	JG	n/a	n/a	VJ1098
F45800-1MSD	J026649.D	1	12/13/06	JG	n/a	n/a	VJ1098
F45800-1	J026647.D	1	12/13/06	JG	n/a	n/a	VJ1098

5.3 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	F45800-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
1476-11-5	cis-1,4-Dichloro-2-Butene	ND		25	33.6	134	30.1	120	11	50-150/30 [a]
541-73-1	m-Dichlorobenzene	ND		25	29.3	117*	28.5	114	3	74-114/7
95-50-1	o-Dichlorobenzene	ND		25	26.7	107	25.9	104	3	73-114/8
106-46-7	p-Dichlorobenzene	ND		25	27.3	109	26.7	107	2	74-112/7
156-60-5	trans-1,2-Dichloroethylene	ND		25	26.2	105	25.7	103	2	70-127/11
10061-02-6	trans-1,3-Dichloropropene	ND		25	28.3	113	27.6	110	3	59-116/11
100-41-4	Ethylbenzene	58.1		25	87.2	116	86.4	113	1	73-119/8
97-63-2	Ethyl methacrylate	ND		25	27.3	109	26.5	106	3	50-150/30 [a]
76-13-1	Freon 113	ND		25	27.6	110	25.6	102	8	67-151/14
591-78-6	2-Hexanone	ND		125	155	124	143	114	8	54-131/11
87-68-3	Hexachlorobutadiene	ND		25	28.0	112	26.8	107	4	52-133/13
110-54-3	Hexane	ND		25	27.9	112	26.6	106	5	62-153/12
98-82-8	Isopropylbenzene	15.0		25	43.4	114	42.3	109	3	79-127/8
99-87-6	p-Isopropyltoluene	8.5		25	37.2	115	36.3	111	2	77-126/8
108-10-1	4-Methyl-2-pentanone	ND		125	155	124	144	115	7	57-136/11
126-98-7	Methacrylonitrile	ND		250	208	83	200	80	4	50-150/30 [a]
74-83-9	Methyl bromide	ND		25	24.4	98	23.9	96	2	52-172/16
74-87-3	Methyl chloride	ND		25	31.1	124	29.4	118	6	53-155/19
74-88-4	Methyl iodide	ND		25	26.2	105	25.2	101	4	52-141/12
80-62-6	Methyl methacrylate	ND		25	23.6	94	21.9	88	7	76-115/11
74-95-3	Methylene bromide	ND		25	26.6	106	25.6	102	4	73-115/9
75-09-2	Methylene chloride	ND		25	25.4	102	24.7	99	3	61-129/11
78-93-3	Methyl ethyl ketone	ND		125	136	109	126	101	8	51-128/10
1634-04-4	Methyl Tert Butyl Ether	ND		25	28.2	113	27.2	109	4	61-129/9
91-20-3	Naphthalene	177	E	25	203	104	170	-28* [b]	18*	52-127/13
76-01-7	Pentachloroethane	ND		25	27.6	110	26.6	106	4	50-150/30 [a]
107-12-0	Propionitrile	ND		250	235	94	217	87	8	50-150/30 [a]
103-65-1	n-Propylbenzene	14.4		25	42.4	112	40.7	105	4	73-123/10
100-42-5	Styrene	ND		25	26.3	105	25.3	101	4	64-124/11
630-20-6	1,1,1,2-Tetrachloroethane	ND		25	27.1	108	26.6	106	2	69-118/8
71-55-6	1,1,1-Trichloroethane	ND		25	28.7	115	27.5	110	4	72-133/8
79-34-5	1,1,2,2-Tetrachloroethane	ND		25	25.7	103	24.9	100	3	64-120/10
79-00-5	1,1,2-Trichloroethane	ND		25	44.6	178*	28.0	112	46*	72-116/9
87-61-6	1,2,3-Trichlorobenzene	ND		25	19.8	79	15.1	60	27*	58-121/12
96-18-4	1,2,3-Trichloropropane	ND		25	28.7	115	28.3	113	1	63-116/13
120-82-1	1,2,4-Trichlorobenzene	ND		25	27.3	109	25.1	100	8	58-120/11

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45800-1MS	J026648.D	1	12/13/06	JG	n/a	n/a	VJ1098
F45800-1MSD	J026649.D	1	12/13/06	JG	n/a	n/a	VJ1098
F45800-1	J026647.D	1	12/13/06	JG	n/a	n/a	VJ1098

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1, F45658-2

CAS No.	Compound	F45800-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	186	E	25	211	100	206	80	2	68-122/10
108-67-8	1,3,5-Trimethylbenzene	66.7		25	92.3	102	90.2	94	2	70-125/9
127-18-4	Tetrachloroethylene	ND		25	28.2	113	27.1	108	4	70-126/9
108-88-3	Toluene	31.0		25	62.2	125*	60.7	119	2	67-123/8
79-01-6	Trichloroethylene	ND		25	25.4	102	24.7	99	3	73-117/10
75-69-4	Trichlorofluoromethane	ND		25	26.3	105	25.7	103	2	52-164/16
110-57-6	Trans-1,4-Dichloro-2-Butene	ND		25	31.4	126	28.4	114	10	27-131/22
75-01-4	Vinyl chloride	ND		25	24.1	96	21.9	88	10	63-161/18
108-05-4	Vinyl Acetate	ND		125	126	101	120	96	5	37-154/10
	m,p-Xylene	216	E	50	288	144* [b]	282	132* [b]	2	74-123/7
95-47-6	o-Xylene	144	E	25	180	144* [b]	177	132* [b]	2	68-123/7

CAS No.	Surrogate Recoveries	MS	MSD	F45800-1	Limits
1868-53-7	Dibromofluoromethane	106%	105%	111%	86-115%
17060-07-0	1,2-Dichloroethane-D4	113%	110%	112%	73-126%
2037-26-5	Toluene-D8	106%	106%	99%	86-112%
460-00-4	4-Bromofluorobenzene	118%	116%	118%	83-119%

(a) Advisory control limits.
(b) Outside control limits due to high level in sample relative to spike amount.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
F45873-22MS	M0016841.D	10	12/15/06	CS	n/a	n/a	VM698
F45873-22MSD	M0016842.D	10	12/15/06	CS	n/a	n/a	VM698
F45873-22	M0016836.D	10	12/15/06	CS	n/a	n/a	VM698

5.3 5

The QC reported here applies to the following samples: Method: SW846 8260B

F45658-1

CAS No.	Compound	F45873-22 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
107-06-2	1,2-Dichloroethane	10 U		250	241	96	240	96	0	64-124/7
78-87-5	1,2-Dichloropropane	10 U		250	253	101	246	98	3	74-123/8

CAS No.	Surrogate Recoveries	MS	MSD	F45873-22	Limits
1868-53-7	Dibromofluoromethane	95%	94%	95%	86-115%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	94%	73-126%
2037-26-5	Toluene-D8	105%	104%	105%	86-112%
460-00-4	4-Bromofluorobenzene	102%	104%	103%	83-119%

GC/MS Semi-volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-MB	L035220.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Compound	Result	RL	MDL	Units	Q
65-85-0	Benzoic Acid	ND	25	10	ug/l	
95-57-8	2-Chlorophenol	ND	5.0	2.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	2.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	5.0	2.0	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.0	ug/l	
51-28-5	2,4-Dinitrophenol	ND	25	10	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	10	5.0	ug/l	
95-48-7	2-Methylphenol	ND	5.0	2.0	ug/l	
	3&4-Methylphenol	ND	5.0	2.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	2.0	ug/l	
100-02-7	4-Nitrophenol	ND	25	10	ug/l	
87-86-5	Pentachlorophenol	ND	25	10	ug/l	
108-95-2	Phenol	ND	5.0	2.0	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	2.0	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	2.0	ug/l	
83-32-9	Acenaphthene	ND	5.0	1.0	ug/l	
208-96-8	Acenaphthylene	ND	5.0	1.0	ug/l	
120-12-7	Anthracene	ND	5.0	1.0	ug/l	
92-87-5	Benzidine	ND	25	15	ug/l	
56-55-3	Benzo(a)anthracene	ND	5.0	1.0	ug/l	
50-32-8	Benzo(a)pyrene	ND	5.0	1.0	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	5.0	1.0	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	5.0	2.0	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	5.0	1.0	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	5.0	1.0	ug/l	
85-68-7	Butyl benzyl phthalate	ND	5.0	2.0	ug/l	
100-51-6	Benzyl Alcohol	ND	5.0	1.0	ug/l	
91-58-7	2-Chloronaphthalene	ND	5.0	1.0	ug/l	
106-47-8	4-Chloroaniline	ND	10	4.0	ug/l	
218-01-9	Chrysene	ND	5.0	1.0	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	5.0	1.0	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	5.0	2.0	ug/l	
108-60-1	bis(2-Chloroisopropyl)ether	ND	5.0	1.0	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	5.0	1.0	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	5.0	1.0	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	5.0	1.0	ug/l	

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-MB	L035220.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Compound	Result	RL	MDL	Units	Q
106-46-7	1,4-Dichlorobenzene	ND	5.0	1.0	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	5.0	2.0	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	5.0	2.0	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	10	5.0	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	5.0	2.0	ug/l	
132-64-9	Dibenzofuran	ND	5.0	1.0	ug/l	
84-74-2	Di-n-butyl phthalate	ND	5.0	2.0	ug/l	
117-84-0	Di-n-octyl phthalate	ND	5.0	2.5	ug/l	
84-66-2	Diethyl phthalate	ND	5.0	2.0	ug/l	
131-11-3	Dimethyl phthalate	ND	5.0	2.0	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	5.0	2.5	ug/l	
206-44-0	Fluoranthene	ND	5.0	1.0	ug/l	
86-73-7	Fluorene	ND	5.0	1.0	ug/l	
118-74-1	Hexachlorobenzene	ND	5.0	1.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	2.0	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	5.0	2.0	ug/l	
67-72-1	Hexachloroethane	ND	5.0	2.0	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.0	2.0	ug/l	
78-59-1	Isophorone	ND	5.0	1.0	ug/l	
91-57-6	2-Methylnaphthalene	ND	5.0	1.0	ug/l	
88-74-4	2-Nitroaniline	ND	10	4.0	ug/l	
99-09-2	3-Nitroaniline	ND	10	4.0	ug/l	
100-01-6	4-Nitroaniline	ND	10	4.0	ug/l	
91-20-3	Naphthalene	ND	5.0	1.0	ug/l	
98-95-3	Nitrobenzene	ND	5.0	1.0	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	5.0	2.0	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	2.0	ug/l	
85-01-8	Phenanthrene	ND	5.0	1.0	ug/l	
129-00-0	Pyrene	ND	5.0	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.0	ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	36%	19-90%
4165-62-2	Phenol-d5	22%	10-68%

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-MB	L035220.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Surrogate Recoveries		Limits
118-79-6	2,4,6-Tribromophenol	70%	36-137%
4165-60-0	Nitrobenzene-d5	66%	49-119%
321-60-8	2-Fluorobiphenyl	67%	45-118%
1718-51-0	Terphenyl-d14	89%	46-135%

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-BS	L035219.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
65-85-0	Benzoic Acid	100	13.9	14	10-50
95-57-8	2-Chlorophenol	50	34.3	69	57-100
59-50-7	4-Chloro-3-methyl phenol	50	39.2	78	63-105
120-83-2	2,4-Dichlorophenol	50	38.8	78	65-106
105-67-9	2,4-Dimethylphenol	50	31.9	64	49-90
51-28-5	2,4-Dinitrophenol	100	81.5	82	26-125
534-52-1	4,6-Dinitro-o-cresol	100	102	102	56-121
95-48-7	2-Methylphenol	50	30.4	61	48-90
	3&4-Methylphenol	100	56.8	57	43-94
88-75-5	2-Nitrophenol	50	38.8	78	62-107
100-02-7	4-Nitrophenol	100	33.5	34	19-66
87-86-5	Pentachlorophenol	100	91.1	91	62-120
108-95-2	Phenol	50	15.5	31	20-65
95-95-4	2,4,5-Trichlorophenol	50	41.3	83	67-103
88-06-2	2,4,6-Trichlorophenol	50	40.1	80	68-104
83-32-9	Acenaphthene	50	40.2	80	67-101
208-96-8	Acenaphthylene	50	41.0	82	65-100
120-12-7	Anthracene	50	44.0	88	71-103
92-87-5	Benzidine	50	24.3	49	21-101
56-55-3	Benzo(a)anthracene	50	45.2	90	71-105
50-32-8	Benzo(a)pyrene	50	44.6	89	67-106
205-99-2	Benzo(b)fluoranthene	50	46.2	92	68-108
191-24-2	Benzo(g,h,i)perylene	50	44.3	89	65-110
207-08-9	Benzo(k)fluoranthene	50	45.5	91	69-110
101-55-3	4-Bromophenyl phenyl ether	50	42.6	85	71-106
85-68-7	Butyl benzyl phthalate	50	46.9	94	66-110
100-51-6	Benzyl Alcohol	50	31.3	63	36-101
91-58-7	2-Chloronaphthalene	50	38.1	76	62-99
106-47-8	4-Chloroaniline	50	36.9	74	58-101
218-01-9	Chrysene	50	45.0	90	71-105
111-91-1	bis(2-Chloroethoxy)methane	50	36.0	72	56-101
111-44-4	bis(2-Chloroethyl)ether	50	39.3	79	60-108
108-60-1	bis(2-Chloroisopropyl)ether	50	33.3	67	49-108
7005-72-3	4-Chlorophenyl phenyl ether	50	41.5	83	69-106
95-50-1	1,2-Dichlorobenzene	50	33.4	67	48-98
541-73-1	1,3-Dichlorobenzene	50	32.8	66	44-95

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-BS	L035219.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-46-7	1,4-Dichlorobenzene	50	32.8	66	46-96
121-14-2	2,4-Dinitrotoluene	50	45.6	91	64-107
606-20-2	2,6-Dinitrotoluene	50	42.6	85	64-102
91-94-1	3,3'-Dichlorobenzidine	50	38.9	78	54-109
53-70-3	Dibenzo(a,h)anthracene	50	44.2	88	61-112
132-64-9	Dibenzofuran	50	40.5	81	70-102
84-74-2	Di-n-butyl phthalate	50	45.0	90	69-109
117-84-0	Di-n-octyl phthalate	50	45.8	92	63-125
84-66-2	Diethyl phthalate	50	42.3	85	66-111
131-11-3	Dimethyl phthalate	50	43.4	87	66-109
117-81-7	bis(2-Ethylhexyl)phthalate	50	47.7	95	66-114
206-44-0	Fluoranthene	50	46.3	93	71-108
86-73-7	Fluorene	50	41.7	83	68-102
118-74-1	Hexachlorobenzene	50	42.7	85	69-103
87-68-3	Hexachlorobutadiene	50	35.3	71	48-100
77-47-4	Hexachlorocyclopentadiene	50	28.6	57	20-85
67-72-1	Hexachloroethane	50	32.8	66	41-98
193-39-5	Indeno(1,2,3-cd)pyrene	50	45.0	90	66-112
78-59-1	Isophorone	50	41.5	83	62-105
91-57-6	2-Methylnaphthalene	50	40.0	80	62-105
88-74-4	2-Nitroaniline	50	43.4	87	66-105
99-09-2	3-Nitroaniline	50	38.9	78	56-104
100-01-6	4-Nitroaniline	50	44.6	89	62-110
91-20-3	Naphthalene	50	37.4	75	56-99
98-95-3	Nitrobenzene	50	37.8	76	60-102
621-64-7	N-Nitroso-di-n-propylamine	50	37.5	75	56-101
86-30-6	N-Nitrosodiphenylamine	50	40.7	81	69-106
85-01-8	Phenanthrene	50	44.2	88	71-104
129-00-0	Pyrene	50	45.6	91	67-108
120-82-1	1,2,4-Trichlorobenzene	50	36.2	72	52-99

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	40%	19-90%
4165-62-2	Phenol-d5	24%	10-68%

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-BS	L035219.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Surrogate Recoveries	BSP	Limits
118-79-6	2,4,6-Tribromophenol	79%	36-137%
4165-60-0	Nitrobenzene-d5	71%	49-119%
321-60-8	2-Fluorobiphenyl	71%	45-118%
1718-51-0	Terphenyl-d14	85%	46-135%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-MS	L035224.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
OP18780-MSD	L035225.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
F45717-1	L035223.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Compound	F45717-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
65-85-0	Benzoic Acid	ND		192	35.0	18	72.6	38	70*	10-80/45
95-57-8	2-Chlorophenol	ND		96.2	60.8	63	67.6	70	11	43-109/27
59-50-7	4-Chloro-3-methyl phenol	ND		96.2	70.9	74	76.0	79	7	57-109/20
120-83-2	2,4-Dichlorophenol	ND		96.2	66.7	69	69.8	73	5	49-114/23
105-67-9	2,4-Dimethylphenol	ND		96.2	54.2	56	59.9	62	10	32-103/24
51-28-5	2,4-Dinitrophenol	ND		192	133	69	157	82	17	20-131/28
534-52-1	4,6-Dinitro-o-cresol	ND		192	167	87	179	93	7	46-130/23
95-48-7	2-Methylphenol	ND		96.2	58.7	61	65.3	68	11	40-102/25
	3&4-Methylphenol	ND		192	115	60	125	65	8	39-97/24
88-75-5	2-Nitrophenol	ND		96.2	62.6	65	69.1	72	10	46-115/26
100-02-7	4-Nitrophenol	ND		192	94.4	49	95.7	50	1	28-81/30
87-86-5	Pentachlorophenol	ND		192	149	77	168	87	12	53-128/22
108-95-2	Phenol	ND		96.2	41.2	43	43.4	45	5	19-81/33
95-95-4	2,4,5-Trichlorophenol	ND		96.2	70.9	74	76.5	80	8	56-110/19
88-06-2	2,4,6-Trichlorophenol	ND		96.2	72.1	75	75.1	78	4	55-112/19
83-32-9	Acenaphthene	ND		96.2	70.7	74	74.3	77	5	58-109/18
208-96-8	Acenaphthylene	ND		96.2	72.2	75	78.0	81	8	59-103/18
120-12-7	Anthracene	ND		96.2	77.0	80	82.0	85	6	65-108/16
92-87-5	Benzidine	ND		96.2	ND	0*	ND	0*	nc	11-98/21
56-55-3	Benzo(a)anthracene	ND		96.2	77.5	81	82.3	86	6	68-106/17
50-32-8	Benzo(a)pyrene	ND		96.2	76.4	79	82.5	86	8	61-108/18
205-99-2	Benzo(b)fluoranthene	ND		96.2	76.1	79	82.0	85	7	65-109/18
191-24-2	Benzo(g,h,i)perylene	ND		96.2	81.0	84	82.9	86	2	60-114/19
207-08-9	Benzo(k)fluoranthene	ND		96.2	78.5	82	84.5	88	7	66-111/17
101-55-3	4-Bromophenyl phenyl ether	ND		96.2	72.7	76	77.8	81	7	68-108/17
85-68-7	Butyl benzyl phthalate	ND		96.2	80.0	83	85.9	89	7	64-111/18
100-51-6	Benzyl Alcohol	ND		96.2	62.3	65	66.7	69	7	44-105/26
91-58-7	2-Chloronaphthalene	ND		96.2	67.8	71	71.1	74	5	57-102/20
106-47-8	4-Chloroaniline	ND		96.2	60.6	63	62.0	64	2	37-106/27
218-01-9	Chrysene	ND		96.2	77.6	81	82.7	86	6	69-106/17
111-91-1	bis(2-Chloroethoxy)methane	ND		96.2	60.6	63	64.4	67	6	46-106/24
111-44-4	bis(2-Chloroethyl)ether	ND		96.2	65.3	68	70.2	73	7	48-114/28
108-60-1	bis(2-Chloroisopropyl)ether	ND		96.2	55.7	58	62.5	65	12	43-110/26
7005-72-3	4-Chlorophenyl phenyl ether	ND		96.2	71.7	75	77.6	81	8	66-107/17
95-50-1	1,2-Dichlorobenzene	ND		96.2	57.5	60	65.3	68	13	45-103/24
541-73-1	1,3-Dichlorobenzene	ND		96.2	55.6	58	65.1	68	16	42-100/24

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-MS	L035224.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
OP18780-MSD	L035225.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
F45717-1	L035223.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Compound	F45717-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
106-46-7	1,4-Dichlorobenzene	ND		96.2	56.8	59	64.8	67	13	43-102/24
121-14-2	2,4-Dinitrotoluene	ND		96.2	75.4	78	82.8	86	9	60-108/18
606-20-2	2,6-Dinitrotoluene	ND		96.2	71.2	74	79.7	83	11	59-105/18
91-94-1	3,3'-Dichlorobenzidine	ND		96.2	62.8	65	65.3	68	4	21-120/24
53-70-3	Dibenzo(a,h)anthracene	ND		96.2	80.1	83	81.2	84	1	59-112/18
132-64-9	Dibenzofuran	ND		96.2	71.4	74	75.3	78	5	65-105/17
84-74-2	Di-n-butyl phthalate	ND		96.2	77.5	81	80.2	83	3	68-109/18
117-84-0	Di-n-octyl phthalate	ND		96.2	74.6	78	81.7	85	9	59-127/23
84-66-2	Diethyl phthalate	ND		96.2	72.2	75	77.4	80	7	64-111/18
131-11-3	Dimethyl phthalate	ND		96.2	74.5	77	81.1	84	8	63-109/17
117-81-7	bis(2-Ethylhexyl)phthalate	ND		96.2	83.9	87	85.8	89	2	58-119/21
206-44-0	Fluoranthene	ND		96.2	80.1	83	83.2	87	4	68-110/18
86-73-7	Fluorene	ND		96.2	74.1	77	79.3	82	7	62-106/17
118-74-1	Hexachlorobenzene	ND		96.2	72.7	76	77.9	81	7	66-106/16
87-68-3	Hexachlorobutadiene	ND		96.2	60.2	63	65.7	68	9	46-107/26
77-47-4	Hexachlorocyclopentadiene	ND		96.2	48.6	51	55.2	57	13	16-84/31
67-72-1	Hexachloroethane	ND		96.2	57.0	59	62.7	65	10	39-105/25
193-39-5	Indeno(1,2,3-cd)pyrene	ND		96.2	81.1	84	84.0	87	4	61-115/19
78-59-1	Isophorone	ND		96.2	71.0	74	76.0	79	7	54-107/22
91-57-6	2-Methylnaphthalene	ND		96.2	67.9	71	74.0	77	9	53-112/22
88-74-4	2-Nitroaniline	ND		96.2	73.3	76	79.6	83	8	60-108/18
99-09-2	3-Nitroaniline	ND		96.2	66.3	69	67.5	70	2	43-103/23
100-01-6	4-Nitroaniline	ND		96.2	73.0	76	79.1	82	8	55-110/19
91-20-3	Naphthalene	ND		96.2	63.4	66	68.4	71	8	49-104/24
98-95-3	Nitrobenzene	ND		96.2	64.3	67	70.2	73	9	50-107/25
621-64-7	N-Nitroso-di-n-propylamine	ND		96.2	65.7	68	70.1	73	6	47-104/23
86-30-6	N-Nitrosodiphenylamine	ND		96.2	70.9	74	75.7	79	7	63-110/17
85-01-8	Phenanthrene	ND		96.2	76.2	79	80.5	84	5	67-108/17
129-00-0	Pyrene	ND		96.2	77.4	80	84.0	87	8	65-108/18
120-82-1	1,2,4-Trichlorobenzene	ND		96.2	60.1	63	68.4	71	13	49-104/25

CAS No.	Surrogate Recoveries	MS	MSD	F45717-1	Limits
367-12-4	2-Fluorophenol	47%	53%	37%	19-90%
4165-62-2	Phenol-d5	37%	39%	22%	10-68%

6.3

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18780-MS	L035224.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
OP18780-MSD	L035225.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804
F45717-1	L035223.D	1	12/12/06	NJ	12/08/06	OP18780	SL1804

The QC reported here applies to the following samples: Method: SW846 8270C

F45658-1

CAS No.	Surrogate Recoveries	MS	MSD	F45717-1	Limits
118-79-6	2,4,6-Tribromophenol	70%	75%	75%	36-137%
4165-60-0	Nitrobenzene-d5	62%	67%	68%	49-119%
321-60-8	2-Fluorobiphenyl	65%	69%	70%	45-118%
1718-51-0	Terphenyl-d14	70%	75%	74%	46-135%

GC Semi-volatiles

QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18785-MB	TT04405.D	1	12/18/06	KL	12/08/06	OP18785	GTT149

The QC reported here applies to the following samples: Method: SW846 8081A

F45658-1

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.050	0.020	ug/l	
319-84-6	alpha-BHC	ND	0.050	0.015	ug/l	
319-85-7	beta-BHC	ND	0.050	0.020	ug/l	
319-86-8	delta-BHC	ND	0.050	0.020	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.050	0.015	ug/l	
5103-71-9	alpha-Chlordane	ND	0.050	0.015	ug/l	
5103-74-2	gamma-Chlordane	ND	0.050	0.015	ug/l	
60-57-1	Dieldrin	ND	0.050	0.015	ug/l	
72-54-8	4,4'-DDD	ND	0.10	0.020	ug/l	
72-55-9	4,4'-DDE	ND	0.10	0.020	ug/l	
50-29-3	4,4'-DDT	ND	0.10	0.020	ug/l	
72-20-8	Endrin	ND	0.10	0.040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.10	0.020	ug/l	
7421-93-4	Endrin aldehyde	ND	0.10	0.040	ug/l	
53494-70-5	Endrin ketone	ND	0.10	0.020	ug/l	
959-98-8	Endosulfan-I	ND	0.050	0.015	ug/l	
33213-65-9	Endosulfan-II	ND	0.10	0.020	ug/l	
76-44-8	Heptachlor	ND	0.050	0.020	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.050	0.015	ug/l	
72-43-5	Methoxychlor	ND	0.10	0.040	ug/l	
8001-35-2	Toxaphene	ND	2.5	1.3	ug/l	

CAS No.	Surrogate Recoveries		Limits
877-09-8	Tetrachloro-m-xylene	89%	60-138%
2051-24-3	Decachlorobiphenyl	86%	31-148%

Blank Spike Summary

Job Number: F45658
Account: BHATNM Bhate Environmental Associates, Inc.
Project: HOLMN

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP18785-BS [a]	TT04404.D	1	12/18/06	KL	12/08/06	OP18785	GTT149

The QC reported here applies to the following samples: Method: SW846 8081A

F45658-1

7.2

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CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
309-00-2	Aldrin	0.5	0.44	88	70-127
319-84-6	alpha-BHC	0.5	0.50	100	65-136
319-85-7	beta-BHC	0.5	0.48	96	68-133
319-86-8	delta-BHC	0.5	0.27	54	48-126
58-89-9	gamma-BHC (Lindane)	0.5	0.51	102	69-137
5103-71-9	alpha-Chlordane	0.5	0.50	100	74-127
5103-74-2	gamma-Chlordane	0.5	0.52	104	75-130
60-57-1	Dieldrin	0.5	0.51	102	76-131
72-54-8	4,4'-DDD	0.5	0.50	100	76-140
72-55-9	4,4'-DDE	0.5	0.52	104	73-137
50-29-3	4,4'-DDT	0.5	0.53	106	74-134
72-20-8	Endrin	0.5	0.54	108	78-134
1031-07-8	Endosulfan sulfate	0.5	0.45	90	73-127
7421-93-4	Endrin aldehyde	0.5	0.059	12	5-104
53494-70-5	Endrin ketone	0.5	0.48	96	80-128
959-98-8	Endosulfan-I	0.5	0.49	98	76-128
33213-65-9	Endosulfan-II	0.5	0.51	102	77-131
76-44-8	Heptachlor	0.5	0.55	110	62-137
1024-57-3	Heptachlor epoxide	0.5	0.49	98	74-130
72-43-5	Methoxychlor	0.5	0.50	100	77-131

CAS No.	Surrogate Recoveries	BSP	Limits
877-09-8	Tetrachloro-m-xylene	90%	60-138%
2051-24-3	Decachlorobiphenyl	86%	31-148%

(a) Insufficient sample for MS/MSD.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10803
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/06/06

Metal	RL	IDL	MB raw	final
Mercury	1.0	.08	-0.045	<1.0

Associated samples MP10803: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.1
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10803
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/06/06 12/06/06

Metal	F45653-18 Original	DUP	RPD	QC Limits	F45653-18 Original	MS	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	0.0	0.0	NC	0-20	0.0	2.9	3	96.7	80-120

Associated samples MP10803: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10803
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/06/06

Metal	BSP Result	Spikelot HGFLWS1	% Rec	QC Limits
Mercury	2.9	3	96.7	80-120

Associated samples MP10803: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.3 8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10803
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 12/06/06

Metal	F45653-18 Original	SDL 1:5	RPD	QC Limits
Mercury	0.00	0.00	NC	0-

Associated samples MP10803: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.1.4

8

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 12/06/06

Metal	RL	IDL	MB raw	final
Aluminum	200	18	anr	
Antimony	6.0	3.4	anr	
Arsenic	10	2.8	-0.54	<10
Barium	200	5	-0.090	<200
Beryllium	4.0	1	anr	
Cadmium	5.0	1	-0.15	<5.0
Calcium	1000	42	anr	
Chromium	10	.6	-0.12	<10
Cobalt	50	1	anr	
Copper	25	.9	anr	
Iron	300	12	anr	
Lead	5.0	1.7	0.67	<5.0
Magnesium	5000	4.3	anr	
Manganese	15	.6	anr	
Molybdenum	50	1.3		
Nickel	40	1	anr	
Potassium	10000	10	anr	
Selenium	10	2	-0.48	<10
Silver	10	.9	0.060	<10
Sodium	10000	500	anr	
Thallium	20	2.3	anr	
Tin	50	3.1		
Vanadium	50	.6	anr	
Zinc	20	1.3	anr	

Associated samples MP10806: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.1 8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:			12/06/06					12/06/06	
Metal	F45653-18 Original	DUP	RPD	QC Limits	F45653-18 Original	MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum	anr								
Antimony	anr								
Arsenic	0.0	0.0	NC	0-20	0.0	2010	2000	100.5	80-120
Barium	5.4	5.3	1.9	0-20	5.4	2070	2000	103.2	80-120
Beryllium	anr								
Cadmium	0.0	0.0	NC	0-20	0.0	50.2	50	100.4	80-120
Calcium	anr								
Chromium	6.7	7.0	4.4	0-20	6.7	213	200	103.2	80-120
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	4.5	4.5	0.0	0-20	4.5	499	500	98.9	80-120
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Potassium	anr								
Selenium	0.0	0.0	NC	0-20	0.0	1940	2000	97.0	80-120
Silver	0.0	0.0	NC	0-20	0.0	50.2	50	100.4	80-120
Sodium	anr								
Thallium	anr								
Tin									
Vanadium	anr								
Zinc	anr								

Associated samples MP10806: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.2.2

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 12/06/06

Metal	F45653-18 Original	MSD	Spikelot MPFLICP1	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	0.0	2010	2000	100.5	0.0	20
Barium	5.4	2070	2000	103.2	0.0	20
Beryllium	anr					
Cadmium	0.0	50.2	50	100.4	0.0	20
Calcium	anr					
Chromium	6.7	212	200	102.7	0.5	20
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	4.5	498	500	98.7	0.2	20
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium	anr					
Selenium	0.0	1930	2000	96.5	0.5	20
Silver	0.0	50.1	50	100.2	0.2	20
Sodium	anr					
Thallium	anr					
Tin						
Vanadium	anr					
Zinc	anr					

Associated samples MP10806: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.2.2 8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 12/06/06

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	2040	2000	102.0	80-120
Barium	2080	2000	104.0	80-120
Beryllium	anr			
Cadmium	51.0	50	102.0	80-120
Calcium	anr			
Chromium	207	200	103.5	80-120
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	498	500	99.6	80-120
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium	anr			
Selenium	1970	2000	98.5	80-120
Silver	50.5	50	101.0	80-120
Sodium	anr			
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP10806: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

8.2.3

8

SERIAL DILUTION RESULTS SUMMARY

Login Number: F45658
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

QC Batch ID: MP10806
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 12/06/06

Metal	F45653-18 Original	SDL 1:5	RPD	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	0.00	0.00	NC	0-10
Barium	5.43	0.00	100.0(a)	0-10
Beryllium	anr			
Cadmium	0.00	0.00	NC	0-10
Calcium	anr			
Chromium	6.73	7.82	16.2 (a)	0-10
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	4.49	0.00	100.0(a)	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Thallium	anr			
Tin				
Vanadium	anr			
Zinc	anr			

Associated samples MP10806: F45658-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

8.2.4 8

GROUNDWATER

F45658R

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F45658R

Sampling Date: 12/01/06

Report to:

Bhate Environmental Associates, Inc.
MOlive@bhate.com
ATTN: Marcia Olive

Total number of pages in report: **13**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F45658R

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F45658-1R	12/01/06	12:30 TL	12/01/06	AQ	Ground Water	SD08-MW08-07

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F45658R

Site: HOLMN **Report Date** 12/21/2006 1:50:24

1 Sample was collected on 12/01/2006 and received at Accutest on 12/01/2006 properly preserved, at 3.4 Deg. C and intact. These Samples received an Accutest job number of F45658R. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method EPA 160.1

Matrix: AQ **Batch ID:** GN23342

All method blanks for this batch meet method specific criteria.

Sample(s) F45658-1RDUP were used as the QC samples for Solids, Total Dissolved.

The following samples were run outside of holding time for method EPA 160.1: F45658-1R

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: December 21, 2006

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	SD08-MW08-07		
Lab Sample ID:	F45658-1R	Date Sampled:	12/01/06
Matrix:	AQ - Ground Water	Date Received:	12/02/06
		Percent Solids:	n/a
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved [a]	4070	100	10	mg/l	1	12/15/06 15:05	LE	EPA 160.1

(a) analyzed out of hold at client's request

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F45658

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 12120061

LIMS Number: NA

Facility/Base LD.: HOLMES

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lanzo

Sample Analysis Requested [4]: VOC 8260; SVOC 8270; Pest 8081; NCRA Metals 6010/7470

Quality Assurance Samples [6]: Ambient Blank Lot Control Number; Equipment Blank Lot Control Number; Trip Blank Lot Control Number

	MM Sample ID (10 Character Max)	SAMPLE LOCID (10 Character Max)	Date Collected (MM-DD-YYYY)	Time Collected (military) (Hours)	Sample Depth (beginning - ending)	EA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	VOC 8260	SVOC 8270	Pest 8081	NCRA Metals 6010/7470					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Code ID
1	SD08-MW08-07	SD08-MW08-7	01/12/06	1230	0' 0'	N	1	WQ	8	X	X	X	X								1
2	Trip Blank	Field QC	01/12/06	1230		TB		WQ	1	X											1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rreservirsinmental@planet.com;kevine@planet.com;mdauben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.		12-1-2006	1600	FX		
2.						
3.	FX					

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 10-05-1999-01)

2.) Sample Type (EA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-t) Sample, FR = Field Replicate (-t) Sample, ER = Equipment Blank (-t) Sample, MS = Matrix Spike, MD = Matrix Spike Duplicate, AB = Ambient Blank (-t)

3.) Sample Number: Unique sample number collected from a particular location per day (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WQ = Groundwater, WS = Surface Water, SO = Soil, SD = Sediment, SL = Sludge, SE = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blank

3.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (alternate) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101010001 in the Equipment Blank Lot Control

3.4

4.1 4

F45658R: Chain of Custody
Page 1 of 3

ACCUTEST Laboratories

F45658R

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F45658 CLIENT: BHATE PROJECT: SD 08

DATE/TIME RECEIVED: 12-1-06 09:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 3.4

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8545 9102 9580

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [x] TRIP BLANK PROVIDED
- [ ] TRIP BLANK NOT PROVIDED
- [ ] TRIP BLANK NOT ON COC
- [x] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [x] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 0

NUMBER OF 5035 FIELD KITS ? 0

NUMBER OR LAB FILTERED METALS ? 0

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE [signature] 12-1-06 TECHNICIAN SIGNATURE/DATE [signature] 12-1-06 ASBD 10/03/06

4.1 4

F45658R: Chain of Custody
Page 2 of 3

Job Change Order: F45658_12/15/2006

Requested Date:	12/15/2006	**Received Date:**	12/1/2006
Account Name:	Bhate Environmental Associates,	**Due Date:**	12/15/2006
Project Description:	HOLMN	**Deliverable:**	COMMBN
CSR:	HW	**TAT (Days):**	14

Sample #: F45658-1

Change: Per client please login sample for TDS

Above Changes Per: Jim Moore-BHATE

Date: 12/15/2006

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

Page 1 of 1

General Chemistry

5

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F45658R
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN23342	100	<100	mg/l				

Associated Samples:
Batch GN23342: F45658-1R
(*) Outside of QC limits

5.1 5

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F45658R
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN23342	F45658-1R	mg/l	4070	3650	11.0%	0-29%

Associated Samples:
Batch GN23342: F45658-1R
(*) Outside of QC limits

5.2

5

GROUNDWATER

F46825

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

02/06/07

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F46825

Sampling Date: 01/25/07

Report to:

MDAuben@bhate.com
JSolomon@bhate.com
rrenvironmental@zianet.com
keving@zianet.com
YWatts@bhate.com;molive@bhate.com
ATTN: Distribution6

Total number of pages in report: 14

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F46825

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F46825-1	01/25/07	12:00 TL	01/26/07	AQ	Ground Water	SD08-MW08-08
F46825-2	01/25/07	13:00 TL	01/26/07	AQ	Ground Water	S10-MW-01

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F46825

Site: HOLMN **Report Date** 2/6/2007 9:42:27 AM

2 Samples were collected on 01/25/2007 and received at Accutest on 01/26/2007 properly preserved, at 2.6 Deg. C and intact. These Samples received an Accutest job number of F46825. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method EPA 160.1

Matrix: AQ **Batch ID:** GN23842

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F46825-1DUP were used as the QC samples for Solids, Total Dissolved.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: February 06, 2007

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SD08-MW08-08		
Lab Sample ID:	F46825-1	Date Sampled:	01/25/07
Matrix:	AQ - Ground Water	Date Received:	01/26/07
		Percent Solids:	n/a
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved [a]	17200	100	10	mg/l	1	01/31/07 11:15	LE	EPA 160.1

(a) Confirmed by reanalysis.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	S10-MW-01		
Lab Sample ID:	F46825-2	Date Sampled:	01/25/07
Matrix:	AQ - Ground Water	Date Received:	01/26/07
		Percent Solids:	n/a
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved [a]	8410	100	10	mg/l	1	01/31/07 11:15	LE	EPA 160.1

(a) Confirmed by reanalysis.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F46825

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 12520072

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Field Sample ID (30 Character Max)	ERPIMS LOCID (10 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)		SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of Containers	TOC							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Batch
SD08-MW08-07	SD08	25/1/2007	1200	0'	0'	N	1	WG	1	5										2
S10-MW-01	SD08	25/1/2007	1300	0'	0'	N	1	WG	1	5										2

Sample Analysis Requested [5] — Quality Assurance Samples [6]

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;keving@planet.com;mdaubee@bhate.com

Custody Transfer Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. [signature]	1-25-2007	1600	1. [signature]		
2.			2. [signature]		
3.			3. [signature]	1/26/07	09:00

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1997-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-x) Sample, FR = Field Replicate (-h) Sample, ER = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-a)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater samples collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WB = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, RS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc.), EQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

2.6

4.1 4

F46825: Chain of Custody
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ACCUTEST

F46825

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F46825 CLIENT: BMATE PROJECT: 9050361.01.04

DATE/TIME RECEIVED: 01-26-07 09:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 2 6

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8530 7647 5845

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [x] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [x] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

MISC. INFORMATION

NUMBER OF ENCORES ? 0

NUMBER OF 5035 FIELD KITS ? 0

NUMBER OR LAB FILTERED METALS ? 0

SUMMARY OF COMMENTS: RECEIVED ONLY ONE TDS AMBER PER SAMPLE

TECHNICIAN SIGNATURE/DATE [signature] 01-26-07 TECHNICIAN SIGNATURE/DATE [signature] ASBD 10/03/06

4.1 4

F46825: Chain of Custody
Page 2 of 3

ACCUTEST Laboratories F46825

F46825

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 12520072

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lubero

Field Sample ID (10 Character Max)	ERPIMS LOCID (14 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (military) (hhmm)	Sample Depth (beginning - ending)		BA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	TDS								Analytical Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Code ID [6]
										Sample Analysis Requested [5]								Quality Assurance Samples [6]			
SD08-MW06-08	SD08	25/1/2007	1200	0'	0'	N	1	WG	1	TDS											2
S10-MW-01	SD08	25/1/2007	1300	0'	0'	N	1	WG	1	TDS											2

COMMENTS: ATTN: Sample Receiving
Acutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;kvring@planet.com;mdeshea@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.			1.		
2. [signature]	1-25-2007	1600	2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Acutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (BA) Codes. N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-d) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-a)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 would be designated 101099-01 in the Equipment Blank Lot Control

4.1

4

F46825: Chain of Custody
Page 3 of 3

ACCUTEST

F46825

General Chemistry

5

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F46825
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN23842	100	<100	mg/l				

Associated Samples:
Batch GN23842: F46825-1, F46825-2
(*) Outside of QC limits

5.1

5

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F46825
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN23842	F46825-1	mg/l	17200	16700	2.8	0-30%

Associated Samples:
Batch GN23842: F46825-1, F46825-2
(*) Outside of QC limits

5.2
5

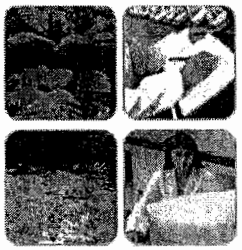
GROUNDWATER

F46838

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

02/06/07



Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F46838

Sampling Date: 01/26/07

Report to:

MDAuben@bhate.com
JSolomon@bhate.com
rrenvironmental@zianet.com
keving@zianet.com
YWatts@bhate.com;molive@bhate.com
ATTN: Distribution6

Total number of pages in report: 12

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F46838

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F46838-1	01/26/07	09:00 TL	01/27/07	AQ	Ground Water	SD08-MW-01

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F46838

Site: HOLMN **Report Date** 2/6/2007 9:47:33 AM

1 Sample was collected on 01/26/2007 and received at Accutest on 01/27/2007 properly preserved, at 2.4 Deg. C and intact. These Samples received an Accutest job number of F46838. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method EPA 160.1

Matrix: AQ **Batch ID:** GN23842

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) F46825-1DUP were used as the QC samples for Solids, Total Dissolved.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: February 06, 2007

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SD08-MW-01		
Lab Sample ID:	F46838-1	Date Sampled:	01/26/07
Matrix:	AQ - Ground Water	Date Received:	01/27/07
		Percent Solids:	n/a
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	11500	100	10	mg/l	1	01/31/07 11:15	LE	EPA 160.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F46838

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 12620071

LIMS Number: NA

Facility/Site I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T. Lacero

Sample Analysis Requested [3]: TDS

Quality Assurance Samples [6]

Field Sample ID (10 Character Max)	EMSHE LOCID (10 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (24Hour) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	TDS							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
SD08-MW-01	SD08	26/1/2007	0900	0' 0'	N	1	WG	1	1										1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@rissnet.com;kevins@rissnet.com;rudasher@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Tom L	1-26-2007	1600	1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1) Chain of Custody Number - date enriched + custody number (e.g. 09-02-1999-01)

2) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-t) Sample, FD = Field Duplicate (-d) Sample, FR = Field Replicate (-r) Sample, ED = Equipment Blank (-d) Sample, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-a)

3) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4) Matrix Codes: GQ = Soil Gas, WG = Groundwater, WS = Surface Water, RO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Sample, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), BQ = Bottl Blanks

5) Sample Analysis Requested: Analyte(s) method requested and number of containers provided for each.

6) Quality Assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099001 in the Equipment Blank Lot Control

9-&

F46838: Chain of Custody
Page 1 of 2

ACCUTEST

F46838

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F46838 CLIENT: BHATE PROJECT: DD 08

DATE/TIME RECEIVED: 01-27-07 09:30 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 2.4

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8530 7647 5812

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [x] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 0

NUMBER OF 5035 FIELD KITS ? 0

NUMBER OR LAB FILTERED METALS ? 0

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE VC 01-27-07 TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

4.1 4

F46838: Chain of Custody
Page 2 of 2

5

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F46838
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN23842	100	<100	mg/l				

Associated Samples:
Batch GN23842: F46838-1
(*) Outside of QC limits

5.1

5

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F46838
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN23842	F46825-1	mg/l	17200	16700	2.8	0-30%

Associated Samples:
Batch GN23842: F46838-1
(*) Outside of QC limits

5.2 5

GROUNDWATER

F46213

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

03/26/07

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F46213

Sampling Date: 12/27/06

Report to:

Bhate Environmental Associates, Inc.

MOlive@bhate.com

ATTN: Marcia Olive

Total number of pages in report: 12

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Accutest Laboratories

Sample Summary

Bhate Environmental Associates, Inc.

Job No: F46213

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F46213-1	12/27/06	12:00 TL	12/28/06	AQ	Ground Water	SD08-MW08-05

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Bhate Environmental Associates, Inc. **Job No:** F46213

Site: HOLMN **Report Date** 1/8/2007 10:26:49 AM

1 Sample was collected on 12/27/2006 and received at Accutest on 12/28/2006 properly preserved, at 2.8 Deg. C and intact. These Samples received an Accutest job number of F46213. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method EPA 160.1

Matrix: AQ **Batch ID:** GN23488

All method blanks for this batch meet method specific criteria.

Sample(s) F46213-1DUP were used as the QC samples for Solids, Total Dissolved.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:

Date: January 08, 2007

Svetlana Izosimova, QAO (signature on file)

Narrative revised by:

Date: March 24, 2007

Svetlana Izosimova, QAO (signature on file)

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	SD08-MW08-05		
Lab Sample ID:	F46213-1	Date Sampled:	12/27/06
Matrix:	AQ - Ground Water	Date Received:	12/28/06
		Percent Solids:	n/a
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	2420	100	10	mg/l	1	12/28/06 14:05	LE	EPA 160.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F46213

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 122720061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: T Lucero

Field Sample ID (30 Character Max)	ERPIMS LOCID (15 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of Containers	TDS							Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analyte Requested [5]								Quality Assurance Samples [6]			
SD08-MW08-05	SD08-MW08-05	27/12/2006	1200	0' 0'	N	1	WG	1	EG										1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;keying@planet.com;mdauben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. [signature]	12-27-2006	1600	1. Fx		
2.			2.		
3. Fx			3. J. Cooper	12-28-06	0700

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:
Method of Shipment: FEDEX Airbill Number:
Analytical Lab: Accutest Lab Delivery Location: Orlando FL
Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-05-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-a) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SO = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, If sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OD = Soil Gas, WD = Groundwater, WS = Surface Water, SO = Soil, SD = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc.), SQ = Soil Blanks

5.) Sample Analyte Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099001 in the Equipment Blank Lot Control)

9. 8

F46213: Chain of Custody
Page 1 of 2

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F46213 CLIENT: BHATE PROJECT: SD 08

DATE/TIME RECEIVED: 12-28-06 09:00 # OF COOLERS RECEIVED: 1 COOLER TEMPS: 2.8

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8530 7647 5890

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [x] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? ϕ

NUMBER OF 5035 FIELD KITS ? ϕ

NUMBER OR LAB FILTERED METALS ? ϕ

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE JC 12-28-06 TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

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F46213: Chain of Custody
Page 2 of 2

General Chemistry

5

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F46213
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved	GN23488	100	<100	mg/l				

Associated Samples:
Batch GN23488: F46213-1
(*) Outside of QC limits

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F46213
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN23488	F46213-1	mg/l	2420	2460	1.6	0-29%

Associated Samples:
Batch GN23488: F46213-1
(*) Outside of QC limits

5.2 5

APPENDIX E

DATA VALIDATION REPORTS

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Michael J. D'Auben, Bhate Environmental Associates, Inc., Birmingham, Alabama.

Introduction

This data validation is for two samples collected at the SD-08 site at Holloman Air Force Base, New Mexico in October 2006. These samples were analyzed by Accutest Laboratories of Orlando, Florida. The specific samples included in this validation are:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD-08-SB22-2	Soil	10/27/06	F44814	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A)
SD-08-SB22-7	Soil	10/27/06	F44814	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A)
Notes: SDG – Sample Delivery Group, USEPA – U.S. Environmental Protection Agency, VOC – Volatile Organic Compounds, SVOC – Semi-volatile Organic Compounds				

This data was validated against the laboratory's quality assurance/quality control (QA/QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004) (NFGs).

Sample Handling and Holding Times

All samples were properly preserved and transferred under chain-of-custody to the laboratory for analysis. The laboratory prepared and analyzed all samples within the holding times prescribed by the USEPA except for samples SD-08-SB22-EB and the trip blank for method SW8260. These samples represent the equipment blank and the aqueous trip blank. Since no volatile compounds were detected in the associated field samples, using professional judgment no qualification of the data was required.

Blanks

There were three types of blank associated with this sample; method blanks, equipment blanks, and trip blanks. There was bromodichloromethane, chloroform, barium, and lead reported in the equipment blanks in this data package. Any positive results in the

associate field samples less than five times the blank concentration should be considered non-detects "U".

Surrogates

All surrogate results were within the laboratory's method specific QC. No qualification of the data is required.

Laboratory Control Samples

All laboratory control sample (LCS) results met the QC requirements except for vinyl acetate and acrolein which exceeded the associated QC limits. This may indicate a high bias to the data but since no positive results for these two compounds were reported, no qualification of the data is required.

Matrix Spike/Matrix Spike Duplicates

All Matrix Spike and Matrix Spike Duplicate (MS/MSD) results were within method specific QC limits with the following exceptions. The recovery for acrolein, barium, benzidine, 4-chloroaniline, 3,3'-dichlorobenzidine, dibenzofuran, 2-methylnaphthalene, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, and p-chlorotoluene exceeded the associated QC limits. This may indicate a matrix effect and a high bias to the data. Any positive results reported for these parameters should be considered estimated "J".

The recoveries for 2-chloronaphthalene, 1,2,4-trimethylbenzene, 4-bromophenyl phenyl ether, and pentachlorophenol were less than the associated QC limits. This may indicate a low bias to the data and all results were considered estimated non detected, "UJ".

The relative percent difference (RPD) results for barium, 2-methylnaphthalene, 2-nitroaniline, 3,3'-dichlorobenzidine, 3-nitroaniline, 4-chloroaniline, 4-nitroaniline, benzidine, benzyl alcohol, dibenzofuran, and pentachlorophenol exceeded the associated QC limits. This may indicate a matrix effect but since no positive results were reported no qualification of the data was required.

Project Specific Quality Assurance/Quality Control

There was no field duplicate sample collected as part of this sample delivery group. No qualification of the data was required.

Compound Quantitation and Reporting Limits

All of the sample results were reported down to the laboratory method detection limits (MDLs) and none of the samples displayed elevated reporting limits (RLs) due to dilutions or matrix. No qualification of the data is required.

Overall Assessment of Data

Overall, the data should all be suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria except as noted. All analyses were completed, and no data points were rejected due to QC failure. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	Qualifier
SD-08-SB22-2	Lead	U
	Barium	J
	2-Chloronaphthalene	UJ
	1,2,4-Trimethylbenzene	UJ
	4-Bromophenyl phenyl ether	UJ
	Pentachlorophenol	UJ
SD-08-SB22-7	Lead	U
	Barium	J
	2-Chloronaphthalene	UJ
	1,2,4-Trimethylbenzene	UJ
	4-Bromophenyl phenyl ether	UJ
	Pentachlorophenol	UJ

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Michael J. D'Auben, Bhate Environmental Associates, Inc., Birmingham, Alabama.

Introduction

This data validation is for five samples collected at the SD-08 site at Holloman Air Force Base, New Mexico in October 2006. These samples were analyzed by Accutest Laboratories of Orlando, Florida. The specific samples included in this validation are:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD-08-SB21-2	Soil	10/27/06	F44808	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A)
SD-08-SB21-2a	Soil	10/27/06	F44808	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A
SD-08-SB21-6	Soil	10/27/06	F44808	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A
SD-08-SB23-4	Soil	10/27/06	F44808	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A
SD-08-SB23-7	Soil	10/27/06	F44808	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7471A

Notes: SDG – Sample Delivery Group, USEPA – U.S. Environmental Protection Agency, VOC – Volatile Organic Compounds, SVOC – Semi-volatile Organic Compounds

This data was validated against the laboratory's quality assurance/quality control (QA/QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004) (NFGs).

Sample Handling and Holding Times

All samples were properly preserved and transferred under chain-of-custody to the laboratory for analysis. The laboratory prepared and analyzed all samples within the holding times prescribed by the USEPA for each method.

Blanks

There were two types of blanks associated with these samples; method blanks and trip blanks. There were no positive results reported in any of the blanks in this data package. No qualification of the data is required.

Surrogates

All surrogate results were within the laboratory's method specific QC limits with the following exceptions. The recoveries for one of the SVOC surrogates in samples SD-08-SB21-2 and SD-08-SB21-2a was less than the associated QC limits for Run #1. This surrogate was within the associated QC limit on the confirmation run. Since all the other SVOC surrogates were within the associated QC limits, no qualification of the data was required.

Laboratory Control Samples

The Laboratory Control Sample (LCS) results were all within method specific QC limits with the following exceptions. The LCS recoveries for vinyl acetate and acrolein exceeded the associated QC limits. This may indicate a high bias to the data but since no positive results for these two compounds were reported, no qualification of the data is required.

Matrix Spike/Matrix Spike Duplicates

All Matrix Spike and Matrix Spike Duplicate (MS/MSD) results were within method specific QC limits with the following exceptions. The recovery for acrolein exceeded the associated QC limits. This may indicate a high bias to the data but since no positive results for this compound were reported, no qualification of the data is required. The recovery for benzidine was less than the associated QC limits. This may indicate a low bias to the data and all results should be considered estimated "J" or "UJ".

The relative percent difference (RPD) results for benzoic acid exceeded the associated QC limits. This may indicate a matrix effect but since no positive results were reported no qualification of the data was required.

Project Specific Quality Assurance/Quality Control

There was one field duplicate sample (SD-08-SB21-2a) collected as part of this sample delivery group. The field duplicate results met the required QC criteria. No qualification of the data was required.

Compound Quantitation and Reporting Limits

All of the sample results were reported down to the laboratory method detection limits (MDLs) and none of the samples displayed elevated reporting limits (RLs) due to dilutions or matrix with the following exceptions. The RLs for selenium in samples SD-

08-SB21-6, SD-08-SB23-4, and SD-08-SB23-7 were elevated due to matrix interference. No qualification of the data is required but the elevated RLs should be considered when using any non-detects for decision making purposes.

Overall Assessment of Data

Overall, the data should all be suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria except as noted. All analyses were completed, and no data points were rejected due to QC failure. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	Qualifier
SD-08-SB21-2	Benzidine	UJ
SD-08-SB21-2a	Benzidine	UJ
SD-08-SB21-6	Benzidine	UJ
SD-08-SB23-4	Benzidine	UJ
SD-08-SB23-7	Benzidine	UJ

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Michael J. D'Auben, Bhate Environmental Associates, Inc., Birmingham, Alabama.

Introduction

This data validation is for three samples collected at the SD08 site at Holloman Air Force Base, New Mexico in November 2006. These samples were analyzed by Accutest Laboratories of Orlando, Florida. The specific samples included in this validation are:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD-08-MW08-01	Water	11/13/06	F45254	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (200.7/245.1)
SD-08-MW08-05	Water	11/13/06	F45254	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (200.7/245.1)
S10-MW01	Water	11/13/06	F45254	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (200.7/245.1)
Notes: SDG – Sample Delivery Group, USEPA – U.S. Environmental Protection Agency, VOC – Volatile Organic Compounds, SVOC – Semi-volatile Organic Compounds				

This data was validated against the laboratory's quality assurance/quality control (QA/QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004) (NFGs).

Sample Handling and Holding Times

All samples were properly preserved and transferred under chain-of-custody to the laboratory for analysis. The laboratory prepared and analyzed all samples within the holding times prescribed by the USEPA for each method with the following exceptions. The volatile analyses for sample SD-08-MW08-01 was re-run outside of the established holding time. Therefore, the volatile results for 1,2-dichloroethane which were reported from the second analysis in this sample should be considered estimated "J". The semi-volatile confirmation analyses for SD-08-MW08-01, SD-08-MW08-05, and S10-MW01 were run outside of the established holding times for extraction by eight days. Therefore, all SVOC results for these samples should be considered estimated non-detect, "UJ".

Blanks

There were two types of blanks associated with this sample; method and trip. There were no positive results reported in any of the blanks in this data package with the following exceptions. There was acetone and methylene chloride reported in one of the trip blanks.

Since there were no positive results reported for these compounds in the associated field samples, no qualification of the data is required.

Surrogates

All surrogate results were within the laboratory's method specific QC limits with the following exceptions. There were two or more surrogates with recoveries less than the associated QC limits in samples S10-MW01 and SD-08-MW08-01 for Run #1. Since all the SVOC surrogates were within the associated QC limits in the confirmatory run, no qualification of the data was required.

Laboratory Control Samples

The Laboratory Control Sample (LCS) results associated with this data package were all within the required QC limits with the following exceptions. The recoveries for chlorobenzene, cis-1,3-dichloropropene, and methylene bromide exceeded the associated QC limits. This may indicate a high bias to the data and but since no positive results for these compounds were reported, not qualification of the data was required.

The recoveries for 2,4-dichlorophenol, 2,4-dimethylphenol, 2-chlorophenol, 2-methylphenol, 3&4-methylphenol, 4-chloro-3-methyl phenol, 4-nitrophenol, and phenol were all less than the associated QC limits. This may indicate a low bias to the data and all results for these compounds should be considered estimated "J" or "UJ".

Matrix Spike/Matrix Spike Duplicates

The Matrix Spike and Matrix Spike Duplicate (MS/MSD) results associated with this data package were all within the required QC limits, with the following exceptions. The recoveries for acrolein, cis-1,3-dichloropropene, methyl ethyl ketone, methyl methacrylate, methylene bromide, naphthalene, and trichloroethylene exceeded the associated QC limits. This may indicate a matrix effect and a high bias to the data. All positive results for these compounds in the associated samples should be considered estimated "J".

The recoveries for 2-chloroethyl vinyl ether, 4,4'-DDE, 4,4'-DDT, and methoxychlor were less than the associated QC limits. This may indicate a matrix effect and a low bias to the data. All results for these compounds should be considered estimated "J" or "UJ".

The relative percent difference (RPD) results for endrin aldehyde and mercury exceeded the associated QC limits. This may indicate a matrix effect and all positive results for these compounds in the associated field sample should be considered estimated "J".

Project Specific Quality Assurance/Quality Control

There was no field duplicate sample collected as part of this sample delivery group. No qualification of the data was required.

Compound Quantitation and Reporting Limits

All of the sample results were reported down to the laboratory method detection limits (MDLs) and none of the samples displayed elevated reporting limits (RLs) due to dilutions or matrix. No qualification of the data was required.

Overall Assessment of Data

Overall, the data should all be suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria except where noted. All analyses were completed, and no data points were rejected due to QC failure. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	Qualifier
SD-08-MW08-01	1,2-Dichloroethane	J
	Mercury	J
	2-Chloroethyl vinyl ether	UJ
	4,4'-DDE	UJ
	4,4'-DDT	UJ
	Methoxychlor	UJ
	All SVOCs	UJ
SD-08-MW08-05	Mercury	J
	2-Chloroethyl vinyl ether	UJ
	4,4'-DDE	UJ
	4,4'-DDT	UJ
	Methoxychlor	UJ
	Methyl ethyl ketone	J
	All SVOCs	UJ
S10-MW01	Mercury	J
	2-Chloroethyl vinyl ether	UJ
	4,4'-DDE	UJ
	4,4'-DDT	UJ
	Methoxychlor	UJ
	All SVOCs	UJ

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Michael J. D'Auben, Bhate Environmental Associates, Inc., Birmingham, Alabama.

Introduction

This data validation is for two samples collected at the SD-08 site at Holloman Air Force Base, New Mexico in November 2006. These samples were analyzed by Accutest Laboratories of Orlando, Florida. The specific samples included in this validation are:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD08-MW08-08	Water	11/16/06	F45339	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (200.7/245.1)
SD08-MW08-08D	Water	11/16/06	F45339	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (200.7/245.1)
Notes: SDG – Sample Delivery Group, USEPA – U.S. Environmental Protection Agency, VOC – Volatile Organic Compounds, SVOC – Semi-volatile Organic Compounds				

This data was validated against the laboratory's quality assurance/quality control (QA/QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004) (NFGs).

Sample Handling and Holding Times

All samples were properly preserved and transferred under chain-of-custody to the laboratory for analysis. The laboratory prepared and analyzed all samples within method specific holding times with the exception of the time from collection to extraction for the confirmation run for method 8270C. All analytes were non-detected and using professional judgment no qualification was required.

Blanks

There were two types of blanks associated with this sample; method and trip. Methylene chloride was detected in one of the trip blanks. This analyte was not detected in the other blanks or in the samples. Therefore, using professional judgment, no qualification of the data was required.

Surrogates

All surrogate results were within the laboratory's method specific QC limits with the following exceptions. The recovery for one of the SVOC surrogates was less than the associated QC limits in samples SD08-MW08-08 and SD08-MW08-08D. Since all the other SVOC surrogates were within the associated QC limits, no qualification of the data was required.

Matrix Spike/Matrix Spike Duplicates

The Matrix Spike and Matrix Spike Duplicate (MS/MSD) results associated with this data package were all within the required QC limits, with the following exceptions. The recoveries for benzidine, 2-chloroethyl vinyl ether, methoxychlor, 4,4'-DDE, and 4,4'-DDT were less than the associated QC limits. This may indicate a matrix effect and a low bias to the data. All results for these compounds should be considered estimated "J" or "UJ".

The recoveries for cis-1,3-dichloropropene, methylene bromide, and trans-1,4-dichloro-2-butene exceeded the associated QC limits. This may indicate a matrix effect and a high bias to the data. Since no positive results for these compounds were reported in the associated field samples, no qualification of the data was required.

The relative percent difference (RPD) results for 2-chloroethyl vinyl ether and endrin aldehyde exceeded the associated QC limits. This may indicate a matrix effect but since no positive results for these compounds in the associated field samples were reported, no qualification of the data was required.

Laboratory Control Samples

The Laboratory Control Sample (LCS) results associated with this data package were all within the required QC limits. No qualification of the data is required.

Project Specific Quality Assurance/Quality Control

There was one field duplicate sample (SD08-MW08-08D) collected as part of this sample delivery group. All results met the associated QC limits. No qualification of the data was required.

Compound Quantitation and Reporting Limits

All of the sample results were reported down to the laboratory method detection limits (MDLs) and none of the samples displayed elevated reporting limits (RLs) due to dilutions or matrix with the following exceptions. The RL for selenium was elevated due to matrix interference. No qualification of the data is required but the elevated RL should be considered when using any non-detects for decision making purposes.

Overall Assessment of Data

Overall, the data should all be suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria except as noted. All analyses were completed, and no data points were rejected due to QC failure. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	Qualifier
SD08-MW08-08	2-Chloroethyl vinyl ether	UJ
	Benzidine	UJ
	4,4'-DDE	UJ
	4,4'-DDT	UJ
	Methoxychlor	UJ
SD08-MW08-08D	2-Chloroethyl vinyl ether	UJ
	Benzidine	UJ
	4,4'-DDE	UJ
	4,4'-DDT	UJ
	Methoxychlor	UJ

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Marcia Olive, Bhate Environmental Associates, Inc., Denver, Colorado.

Introduction

This data validation report covers samples taken from Holloman Air Force Base, New Mexico, on December 1, 2006. One aqueous sample and the associated quality control (QC) sample were taken from the refuse collection truck wash rack (SD-08) for analyses. All analyses were performed by Accutest Laboratories of Orlando, Florida. The specific samples included in this validation were:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD08-MW08-07	Water	12/1/06	F45658 and F45658R	VOC (8260B), SVOC (8270C), Pesticides (8081A), Metals (6010B/7470A), TDS (160.1)
Trip Blank	Water	12/1/06	F45658	VOC (SW8260B)

Notes: SDG – Sample Delivery Group, USEPA – U.S. Environmental Protection Agency, VOC – Volatile Organic Compounds, SVOC – Semi-volatile Organic Compounds, TDS – Total Dissolved Solids

This data was validated against the laboratory's quality assurance/quality control (QA/QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004), and in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) (NFGs).

Sample Handling and Holding Times

The samples were properly preserved and transferred under chain-of-custody to the laboratory for analysis and analyzed within the required holding times except for TDS analysis which was analyzed seven days outside the holding time. Therefore, the results for TDS were qualified as estimated low biased (J-).

Blanks

All method blanks were properly batched with the corresponding field samples. Methylene chloride was detected in the trip blank at a concentration above the method detection limit (MDL), but below the reporting limit (RL). Although methylene chloride is a common laboratory contaminant, it was not detected in the subsequent sample. Therefore, qualification of the associated sample data was not required.

Blank Spike Sample (Laboratory Control Sample) / Surrogates

The Laboratory Control Sample (LCS) associated with method 8260B had a percent recovery (%R) less than the lower acceptance limit for allyl chloride. The affected compound was not detected (ND) in the sample and was qualified non-detected estimated (UJ).

Surrogates were injected into all field and organic QC samples for the organic analysis and the %R was calculated. In method 8260B, 1.2-dichloroethane-d4 and dibromofluoromethane recoveries were outside the upper acceptance limits for the sample which was confirmed by re-analysis. The surrogates were within acceptance limits on the 2nd run from which the results were taken. Therefore, qualification of the sample data was not required.

Matrix Spike (MS)/Matrix Spike Duplicates (MSDs)

The matrix spike recovery(s) for 1,1,2-trichloroethane, 1,2-dibromo-3-chloropropane, m-dichlorobenzene, toluene, m,p-xylene, and o-xylene were above quality control limits. The MS/MSD recovery for 2-chloroethyl vinyl ether was below quality control limits. The relative percent difference (RPD) for 1,1,2-trichloroethane, 1,2,3-trichlorobenzene, and naphthalene were above control limits. Method performance was cross referenced with the LCS, which met the QC requirements. Therefore, qualification of the sample data was not required.

Not enough sample volume was submitted for a pesticide MS/MSD analysis; the LCS was used to assess the precision and accuracy for the pesticide analysis, which met the QC requirements.

Project Specific Quality Assurance/Quality Control

No field duplicate samples or other project specific samples were submitted as part of this sampling event.

One trip blank was collected and analyzed for VOC compounds. As previously reported, methylene chloride was detected in the trip blank but not in the subsequent sample. Therefore using professional judgment no qualification was required.

Compound Quantitation and Reporting Limits

Barium, chromium, and lead were outside control limits for serial dilution. The percent difference was acceptable due to low initial sample concentration (<50x instrument detection limit). Therefore, the affected analytes needed no further qualification.

All other compounds were reported down to the specific reporting limit (RL) without dilutions.

Overall Assessment of Data

Overall, the data is suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria except where noted. Verification of the

pesticide results by a second analytical column was performed. The data is 100% complete.

Summary of Qualified Data		
Sample ID	**Parameter**	**Qualifier**
SD08-MW08-07	Allyl chloride TDS	5.0 UJ (µg/L) 4,070 J- (mg/L)
Notes: µg/L – micrograms per liter, mg/L – milligrams per liter		

Data Validation Report

This report contains the results of the review and validation of the specified data packages performed by Marcia Olive, Bhate Environmental Associates, Inc., Denver, Colorado.

Introduction

This data validation is for three samples collected from site SD-08 at Holloman Air Force Base, New Mexico, in January 2007. The analysis was performed by Accutest Laboratories of Orlando, Florida. The specific samples included in this validation were:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD08-MW-01	Water	1/26/07	F46838	TDS (160.1)
SD08-MW08-08		1/25/07	F46825	
S10-MW-01		1/25/07	F46825	
Notes: SDG – Sample Delivery Group, USEPA – U. S. Environmental Protection Agency, TDS – Total Dissolved Solids				

This data was validated against the laboratory's quality assurance (QA)/quality control (QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004), and in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) (NFGs).

Sample Handling and Holding Times

All samples were properly preserved and transferred under chain-of-custody to the laboratory for analysis and analyzed within the required holding time.

Blanks

No TDS were detected in the method blanks.

Surrogates

There were no surrogate results associated with these sample batches. No qualification of the data was required.

Laboratory Control Sample

There were no Laboratory Control Sample (LCS) analyses associated with these sample batches. No qualification of the data was required.

Matrix Spike/Matrix Spike Duplicates

There were no Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples associated with these sample batches. No qualification of the data was required.

Project Specific Quality Assurance/Quality Control

The laboratory duplicate results were within method specific QC limits.

Compound Quantitation and Reporting Limits

The sample results were reported down to the laboratory method detection limit (MDL) and the samples did not display elevated reporting limits (RLs) due to dilutions.

Overall Assessment of Data

Overall, the data is suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria. The data is 100% complete.

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Marcia Olive, Bhate Environmental Associates, Inc., Denver, Colorado.

Introduction

This data validation is for one sample collected from site SD-08 at Holloman Air Force Base, New Mexico, in December 2006. The analysis was performed by Accutest Laboratories of Orlando, Florida. The specific sample included in this validation was:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (USEPA Method Number)
SD08-MW08-05	Water	12/27/06	F46213	TDS (160.1)
Notes: SDG – Sample Delivery Group, USEPA – U. S. Environmental Protection Agency, TDS – Total Dissolved Solids				

This data was validated against the laboratory's quality assurance (QA)/quality control (QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004), and in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) (NFGs).

Sample Handling and Holding Times

The sample was properly preserved and transferred under chain-of-custody to the laboratory for analysis and analyzed within the required holding time.

Blanks

No positive results were reported in the method blank.

Surrogates

There were no surrogate results associated with this sample. No qualification of the data was required.

Laboratory Control Sample

There were no Laboratory Control Sample (LCS) analyses associated with this sample. No qualification of the data was required.

Matrix Spike/Matrix Spike Duplicates

There were no Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples associated with this data package. No qualification of the data was required.

Project Specific Quality Assurance/Quality Control

The laboratory duplicate result was within method specific QC limits.

Compound Quantitation and Reporting Limits

The sample result was reported down to the laboratory method detection limit (MDL) and the sample did not display elevated reporting limits (RLs) due to dilutions or matrix.

Overall Assessment of Data

Overall, the data is suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria. The data is 100% complete.

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Michael J. D'Auben, Bhate Environmental Associates, Inc., Birmingham, Alabama.

Introduction

This data validation is for one sample collected at the SD-08 site at Holloman Air Force Base, New Mexico in October 2006. This sample was analyzed by Accutest Laboratories of Orlando, Florida. The specific sample included in this validation is:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (Method)
SD-08-SB24-3	Soil	10/27/06	F44851	Bulk Density (Dry Basis) (ASTM D2937-94M, Fractional Organic Carbon (ASTM D2974-87), Solids, Percent (USEPA 160.3M), Specific Gravity (ASTM 1429)
Notes: SDG – Sample Delivery Group, ASTM – American Society for Testing and Materials, USEPA – U.S. Environmental Protection Agency				

This data was validated against the laboratory's quality assurance (QA)/quality control (QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004).

Sample Handling and Holding Times

The sample was properly preserved and transferred under chain-of-custody to the laboratory for analysis. The laboratory prepared and analyzed the sample within the holding times prescribed for each method.

Blanks

There was one type of blank associated with this sample; method blank. There were no positive results reported in the method blank in this data package. No qualification of the data is required.

Surrogates

There were no surrogate results associated with this sample. No qualification of the data was required.

Matrix Spike/Matrix Spike Duplicates

There were no Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples associated with this data package. No qualification of the data is required.

Laboratory Control Samples

There were no Laboratory Control Sample (LCS) analyses associated with this data package. No qualification of the data is required.

Project Specific Quality Assurance/Quality Control

There were no field duplicate samples collected as part of this sample delivery group. No qualification of the data was required.

Compound Quantitation and Reporting Limits

All of the sample results were reported down to the laboratory method detection limits (MDLs) and the sample did not display elevated reporting limits (RLs) due to dilutions or matrix. No qualification of the data is required.

Overall Assessment of Data

Overall, the data should all be suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria. All analyses were completed, and no data points were rejected due to QC failure. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	Qualifier
SD-08-SB24-3	All	None

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Michael J. D'Auben, Bhate Environmental Associates, Inc., Birmingham, Alabama.

Introduction

This data validation is for one sample collected at the SD-08 site at Holloman Air Force Base, New Mexico in October 2006. The sample was analyzed by Accutest Laboratories of Orlando, Florida. The specific sample included in this validation is:

Sample ID	Matrix	Collection Date	Lab SDG	Analyses (Method)
SD-08-SB24-8	Soil	10/27/06	F44882	Bulk Density (Dry Basis) (ASTM D2937-94M, Fractional Organic Carbon (ASTM D2974-87), Solids, Percent (USEPA 160.3M), Specific Gravity (ASTM 1429)
Notes: SDG – Sample Delivery Group, ASTM – American Society for Testing and Materials, USEPA – U.S. Environmental Protection Agency				

This data was validated against the laboratory's quality assurance (QA)/quality control (QC) limits using the guidelines and practices promulgated in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004).

Sample Handling and Holding Times

The sample was properly preserved and transferred under chain-of-custody to the laboratory for analysis. The laboratory prepared and analyzed the sample within the holding times prescribed for each method.

Blanks

There was one type of blank associated with this sample; method blank. There were no positive results reported in the blank in this data package. No qualification of the data is required.

Surrogates

There were no surrogate results associated with this sample. No qualification of the data was required.

Matrix Spike/Matrix Spike Duplicates

There were no Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples associated with this data package. No qualification of the data is required.

Laboratory Control Samples

There were no Laboratory Control Sample (LCS) analyses associated with this data package. No qualification of the data is required.

Project Specific Quality Assurance/Quality Control

There were no field duplicate samples collected as part of this sample delivery group. No qualification of the data was required.

Compound Quantitation and Reporting Limits

All of the sample results were reported down to the laboratory method detection limits (MDLs) and the sample did not display elevated reporting limits (RLs) due to dilutions or matrix. No qualification of the data is required.

Overall Assessment of Data

Overall, the data should all be suitable for the intended data usage. All analyses were performed, and the data met the required QC criteria. All analyses were completed, and no data points were rejected due to QC failure. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	Qualifier
SD-08-SB24-8	All	None

APPENDIX F

GEOTECHNICAL ANALYTICAL DATA PACKAGES

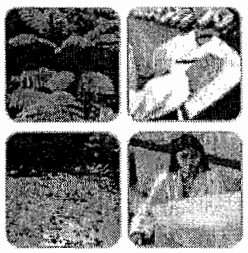
GEOTECHNICAL

F44851

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

11/16/06



Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT # 9050361.01.04

Accutest Job Number: F44851

Sampling Date: 10/27/06

Report to:

MDAuben@bhate.com
JSolomon@bhate.com
rrenvironmental@zianet.com
keving@zianet.com
YWatts@bhate.com
ATTN: Distribution6

Total number of pages in report: **12**

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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4.1: Method Blank and Spike Results Summary 11
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Sample Summary

Bhate Environmental Associates, Inc.

Job No: F44851

HOLMN
Project No: PROJECT # 9050361.01.04

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
F44851-1	10/27/06	13:20	JM	10/31/06	SO	Soil	SD-08-SB24-3

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SD-08-SB24-3		
Lab Sample ID:	F44851-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	10/31/06
		Percent Solids:	82.9
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Bulk Density (Dry Basis)	1.3		g/ml	1	11/07/06	LE	ASTM D2937-94 M
Fractional Organic Carbon	3.9		%	1	11/16/06	LE	ASTM D2974-87
Fractional Organic Carbon	3.9		%	1	11/16/06	LE	ASTM D2974-87
Solids, Percent	82.9		%	1	11/08/06	JB	EPA 160.3 M
Specific Gravity	1.7			1	11/07/06	LE	ASTM 1429

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

F44851

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 103020061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: Jim Moore

Sample Analysis Requested [5] / Quality Assurance Samples [6]

Field Sample ID (20 Character Max)	BHP/IMS LOCID (15 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	EA Code [2]	Sample Number [3]	Matrix Code [4]	Number of containers	1646.2M See Attachment	D2887 See Attachment	D1425 See Attachment	2974 See Attachment					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
SD-08-SB24-3	SD-08-SB24-3	27/10/2006	1320	2' 3'	N	1	SO	1	1G	1G	1G	1G								1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rreenvironmental@zlanet-somikeving@zlanet.com;mdauben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	10-30-2006	1600	1. George Cassel	10-31-06	9:00
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment: FEDEX Airbill Number:

Analytical Lab: Accutest Lab Delivery Location: Orlando Fl.

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (EA) Codes: N = Normal Sample, TB = Trip Blank (-e) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-c)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OB = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SS = Sediment, SL = Sludge, SB = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099001 in the Equipment Blank Lot Control

F44851: Chain of Custody

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ACCUTEST Laboratories

F44851

F44851

Table 4 Soil Geotechnical Summary

Project	Site Name	Sample Location	Sample Matrix	Moisture Content by 160.3M	Dry Bulk Density by ASTM D2937	Specific Gravity by ASTM D1429	Fractional Organic Carbon Content by ASTM 2974
9050044.01.04	DP-63	SB-63-01	Soil				
		SB-63-02	Soil				
		SB-63-03	Soil				
		SB-63-04	Soil				
		SB-63-05	Soil				
9050361.01.04	SD-08	~~SB-08-21~~ (downgradient well)	Soil				
	SD-08-24	~~SB-08-22~~ (upgradient well)	Soil	2	2	2	2
		~~SB-08-23~~ (drainage pit bh)	Soil				
		~~SB-08-24~~ (drainage pit bh)	Soil				
9050361.01.01	SS-17	SS17-[redacted]SB-14	Soil				
		SS17-[redacted]SB-15	Soil				
		SS17-[redacted]SB-16	Soil				
		SS17-[redacted]SB-17	Soil				
		SS17-[redacted]SB-18	Soil				
		SS17-[redacted]SB-19	Soil				
		SS17-[redacted]SB-20	Soil				
		SS17-[redacted]SB-21	Soil				
		SS17-[redacted]SB-22	Soil				
		SS17-[redacted]SB-23	Soil				
		SS17-[redacted]SB-24	Soil				
		SS17-[redacted]SB-25	Soil				
	Total Soil Samples			2	2	2	2

F44851: Chain of Custody
Page 2 of 2

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F44851 CLIENT: BHATE PROJECT: SD-08

DATE/TIME RECEIVED: 10-31-06 9:00 # OF COOLERS RECEIVED: Box COOLER TEMPS: 24.2

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS: 8581035 01525

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [x] TRIP BLANK NOT PROVIDED
- [x] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? Ø

NUMBER OF 5035 FIELD KITS ? Ø

NUMBER OR LAB FILTERED METALS ? Ø

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE Smc 10-31-06 TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

F44851: Chain of Custody
Page 3 of 3

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F44851
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

4.1
4

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bulk Density (Dry Basis)	GN22848		0.0	g/ml				
Fractional Organic Carbon	GN22847		0.0	%				
Fractional Organic Carbon	GN22847		0.0	%				
Specific Gravity	GN22846		1.0					

Associated Samples:
Batch GN22846: F44851-1
Batch GN22847: F44851-1
Batch GN22848: F44851-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F44851
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Bulk Density (Dry Basis)	GN22848	F44851-1	g/ml	1.3	1.4	0.1	0-20%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Solids, Percent	GN22849	F44892-1	%	71.6	71.2	0.6	0-30%
Specific Gravity	GN22846	F44851-1		1.7	1.7	1.4	0-20%

Associated Samples:
Batch GN22846: F44851-1
Batch GN22847: F44851-1
Batch GN22848: F44851-1
Batch GN22849: F44851-1
(*) Outside of QC limits

GEOTECHNICAL

F44882

Southeast ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

11/16/06

Technical Report for

Bhate Environmental Associates, Inc.

HOLMN

PROJECT #9050361.01.04

Accutest Job Number: F44882

Sampling Date: 10/27/06

Report to:

MDAuben@bhate.com
JSolomon@bhate.com
rrenvironmental@zianet.com
keving@zianet.com
YWatts@bhate.com
ATTN: Distribution6

Total number of pages in report: 12

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

ACCUTEST LABORATORIES 50 YEARS 1956-2006

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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Section 4: General Chemistry - QC Data Summaries **10**
4.1: Method Blank and Spike Results Summary 11
4.2: Duplicate Results Summary 12

Sample Summary

Bhate Environmental Associates, Inc.

Job No: F44882

HOLMN
Project No: PROJECT #9050361.01.04

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
F44882-1	10/27/06	13:30 JM	11/01/06	SO	Soil	SD-08-SB24-8

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SD-08-SB24-8		
Lab Sample ID:	F44882-1	Date Sampled:	10/27/06
Matrix:	SO - Soil	Date Received:	11/01/06
		Percent Solids:	86.9
Project:	HOLMN		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Bulk Density (Dry Basis)	0.81		g/ml	1	11/07/06	LE	ASTM D2937-94 M
Fractional Organic Carbon	3.4		%	1	11/16/06	LE	ASTM D2974-87
Fractional Organic Carbon	3.4		%	1	11/16/06	LE	ASTM D2974-87
Solids, Percent	86.9		%	1	11/08/06	JB	EPA 160.3 M
Specific Gravity	1.4			1	11/07/06	LE	ASTM 1429

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

BHATE

Environmental Engineers and Scientists

Chain of Custody and Analytical Request

F44882

Page 1 of 1

Project Number 9050361.01.04

P.O. NA

Chain of Custody Number [1]: 103020061

LIMS Number: NA

Facility/Base I.D.: HOLMN

Project Name / Site Name: SD 08

Client Name: USACE

Collected by: Jim Moore

Field Sample ID (10 Character Max)	USFIMS LOCID (11 Character Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	BA Code [2]	Sample Number [3]	Sample Matrix [4]	Sample Analysis Requested [5]: Number of containers	144.3M See Attachment	D2597 See Attachment	D1425 See Attachment	2974 See Attachment					Quality Assurance Samples [6]: Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
SD-08-SB24-8	SD-08-SB24-8	27/10/2006	1330	7' 8'	N	1	SO	1	D3	D3	D1	H1								1

COMMENTS: ATTN: Sample Receiving
Accutest Laboratories
4405 Vineland Road Suite C15
Orlando, FL 32811 Email Results to rrenvironmental@planet.com;kevin@planet.com;mdauben@bhate.com

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	10-30-2006	1600	1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped No.: ____

Method of Shipment: FEDEX Airbill Number: ____

Analytical Lab: Accutest Lab Delivery Location: Orlando FL

Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (BA) Codes: N = Normal Sample, TB = Trip Blank (-a) Sample, FD = Field Duplicate (-c) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, If sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: OS = Soil Core, WG = Groundwater, WS = Surface Water, SO = Soil, SS = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 101099-01 in the Equipment Blank Lot Control

F44882: Chain of Custody

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ACCUTEST Laboratories

F44882

10/20/06

3

Table 4 Soil Geotechnical Summary

Project	Site Name	Sample Location	Sample Matrix	Moisture Content by 160.3M	Dry Bulk Density by ASTM D2937	Specific Gravity by ASTM D1429	Fractional Organic Carbon Content by ASTM 2974
9050044.01.04	DP-63	SB-63-01	Soil				
		SB-63-02	Soil				
		SB-63-03	Soil				
		SB-63-04	Soil				
		SB-63-05	Soil				
9050361.01.04	SD-08	~~SB-08-21~~ (downgradient well)	Soil				
	SB-08-24	~~SB-08-22~~ (upgradient well)	Soil	2	2	2	2
		~~SB-08-23~~ (drainage pit bh)	Soil				
		~~SB-08-24~~ (drainage pit bh)	Soil				
9050361.01.01	SS-17	SS17-[redacted]SB-14	Soil				
		SS17-[redacted]SB-15	Soil				
		SS17-[redacted]SB-16	Soil				
		SS17-[redacted]SB-17	Soil				
		SS17-[redacted]SB-18	Soil				
		SS17-[redacted]SB-19	Soil				
		SS17-[redacted]SB-20	Soil				
		SS17-[redacted]SB-21	Soil				
		SS17-[redacted]SB-22	Soil				
		SS17-[redacted]SB-23	Soil				
		SS17-[redacted]SB-24	Soil				
		SS17-[redacted]SB-25	Soil				
	Total Soil Samples			2	2	2	2

F44882: Chain of Custody
Page 2 of 3

ACCUTEST Laboratories
F44882

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: F44882 CLIENT: BHATE PROJECT: SD08

DATE/TIME RECEIVED: 10-31-06 9:00 # OF COOLERS RECEIVED: Box COOLER TEMPS: 24.2

METHOD OF DELIVERY: (FEDEX) UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER

AIRBILL NUMBERS:

3.1 3

COOLER INFORMATION

- [ ] CUSTODY SEAL NOT PRESENT OR NOT INTACT
- [ ] CHAIN OF CUSTODY NOT RECEIVED (COC)
- [ ] ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- [ ] SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- [ ] TEMPERATURE CRITERIA NOT MET

TRIP BLANK INFORMATION

- [ ] TRIP BLANK PROVIDED
- [✓] TRIP BLANK NOT PROVIDED
- [✓] TRIP BLANK NOT ON COC
- [ ] TRIP BLANK INTACT
- [ ] TRIP BLANK NOT INTACT
- [ ] RECEIVED WATER TRIP BLANK
- [ ] RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? Ø

NUMBER OF 5035 FIELD KITS ? Ø

NUMBER OR LAB FILTERED METALS ? Ø

SAMPLE INFORMATION

- [ ] SAMPLE LABELS NOT PRESENT ON ALL BOTTLES
- [ ] CORRECT NUMBER OF CONTAINERS USED
- [ ] SAMPLE RECEIVED IMPROPERLY PRESERVED
- [ ] INSUFFICIENT VOLUME FOR ANALYSIS
- [ ] TIMES ON COC DOES NOT MATCH LABEL(S)
- [ ] ID'S ON COC DOES NOT MATCH LABEL(S)
- [ ] VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- [ ] BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- [ ] NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- [ ] UNCLEAR FILTERING INSTRUCTIONS
- [ ] UNCLEAR COMPOSITING INSTRUCTIONS
- [ ] SAMPLE CONTAINER(S) RECEIVED BROKEN
- [ ] % SOLIDS JAR NOT RECEIVED
- [ ] 5035 FIELD KIT NOT FROZEN WITHIN 48 HOUR'S
- [ ] RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS:

TECHNICIAN SIGNATURE/DATE Smc 10-31-06 TECHNICIAN SIGNATURE/DATE ASBD 10/03/06

F44882: Chain of Custody
Page 3 of 3

4

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F44882
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

4.1 4

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bulk Density (Dry Basis)	GN22848		0.0	g/ml				
Fractional Organic Carbon	GN22847		0.0	%				
Fractional Organic Carbon	GN22847		0.0	%				
Specific Gravity	GN22846		1.0					

Associated Samples:
Batch GN22846: F44882-1
Batch GN22847: F44882-1
Batch GN22848: F44882-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: F44882
Account: BHATNM - Bhate Environmental Associates, Inc.
Project: HOLMN

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Bulk Density (Dry Basis)	GN22848	F44851-1	g/ml	1.3	1.4	0.1	0-20%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Fractional Organic Carbon	GN22847	F44851-1	%	3.9	3.9	1.0	0-42%
Solids, Percent	GN22849	F44892-1	%	71.6	71.2	0.6	0-30%
Specific Gravity	GN22846	F44851-1		1.7	1.7	1.4	0-20%

Associated Samples:
Batch GN22846: F44882-1
Batch GN22847: F44882-1
Batch GN22848: F44882-1
Batch GN22849: F44882-1
(*) Outside of QC limits

APPENDIX G

OUTPUT OF JOHNSON AND ETTINGER MODEL

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_n (µg/kg)	Chemical
75354		1,1-Dichloroethylene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-05

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{floor} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	2.33E+01	2.33E+01	9.37E+05	2.33E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_n (µg/kg)	Chemical
71432		Benzene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G25) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00385										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_c (yrs)	ENTER Averaging time for noncarcinogens, AT_{nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
5.95E+00	1.19E+01	5.95E+00	4.99E+05	5.95E+00

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
108907		Chlorobenzene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28): Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-06	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.19E+02	1.19E+02	4.01E+05	1.19E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_{si} (µg/kg)	Chemical
100414		Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G25) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.56E+03	1.56E+03	2.36E+05	1.56E+03

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
7439976		Mercury (elemental)

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00385										

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_c (yrs)	ENTER Averaging time for noncarcinogens, AT_{nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	5	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.82E+01	1.82E+01	1.04E+06	1.82E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
75092		Methylene chloride

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
7.35E+01	8.91E+02	7.35E+01	1.13E+06	7.35E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
108883		Toluene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_B^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_B^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_B^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.82	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	3.67E+02	3.67E+02	3.86E+05	3.67E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_{si} (µg/kg)	Chemical
75354		1,1-Dichloroethylene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G26) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-06

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	2.33E+01	2.33E+01	9.37E+05	2.33E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_R (µg/kg)	Chemical
71432		Benzene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-06

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
1.49E+00	1.19E+01	1.49E+00	4.99E+05	1.49E+00

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
108907		Chlorobenzene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28): Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.19E+02	1.19E+02	4.01E+05	1.19E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
100414		Ethylbenzene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based Indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.56E+03	1.56E+03	2.36E+05	1.56E+03

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
7439976		Mercury (elemental)

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_t (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_b (cm)	ENTER Totals must add up to value of L_t (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_s^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_s^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_s^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.049	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based soil concentration.	

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.82E+01	1.82E+01	1.04E+06	1.82E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_s (µg/kg)	Chemical
75092		Methylene chloride

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.040	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{slab} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
1.84E+01	8.91E+02	1.84E+01	1.13E+08	1.84E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

SL-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial soil conc., C_{si} (µg/kg)	Chemical
108883		Toluene

MORE ↓

ENTER Average soil temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to top of contamination, L_1 (cm)	ENTER Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) L_2 (cm)	ENTER Totals must add up to value of L_1 (cell G25) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
17	15	30.48	0	30.48	0	0			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_s^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum A soil organic carbon fraction, f_{oc}^A (unitless)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_s^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum B soil organic carbon fraction, f_{oc}^B (unitless)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_s^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)	ENTER Stratum C soil organic carbon fraction, f_{oc}^C (unitless)
LS	1.62	0.39	0.040	0.00365										

MORE ↓

ENTER Enclosed space floor thickness, L_{usc} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based soil concentration.	

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based Indoor exposure soil conc., (µg/kg)	Soil saturation conc., C_{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	3.67E+02	3.67E+02	3.86E+05	3.67E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
7439976		Mercury (elemental)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	7.90E+00	7.90E+00	2.00E+04	7.90E+00

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_w (µg/L)	Chemical
107062		1,2-Dichloroethane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
2.73E+02	NA	2.73E+02	8.52E+06	2.73E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_w (µg/L)	Chemical
78875		1,2-Dichloropropane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
1.80E+02	1.20E+02	1.20E+02	2.80E+06	1.20E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
79005		1,1,2-Trichloroethane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.82	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
6.16E+02	1.18E+03	6.16E+02	4.42E+06	6.16E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67641		Acetone

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	1.84E+05	1.84E+05	1.00E+09	1.84E+05

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
71432		Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
2.05E+02	4.12E+02	2.05E+02	1.79E+06	2.05E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
98066		tert-Butylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	1.46E+03	1.46E+03	2.95E+04	1.46E+03

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663		Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
8.75E+01	NA	8.75E+01	7.92E+06	8.75E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
78933		Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	6	6	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	2.60E+06	2.60E+06	2.23E+08	2.60E+06

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
7439976		Mercury (elemental)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.048								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based Indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	7.90E+00	7.90E+00	2.00E+04	7.90E+00

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
107062		1,2-Dichloroethane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
6.82E+01	NA	6.82E+01	8.52E+08	6.82E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
78875		1,2-Dichloropropane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.82	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
4.51E+01	1.20E+02	4.51E+01	2.80E+06	4.51E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
79005		1,1,2-Trichloroethane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.380	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
1.54E+02	1.18E+03	1.54E+02	4.42E+06	1.54E+02

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67641		Acetone

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	1.84E+05	1.84E+05	1.00E+09	1.84E+05

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_w (µg/L)	Chemical
71432		Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
5.13E+01	4.12E+02	5.13E+01	1.79E+08	5.13E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
98066		tert-Butylbenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G25) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.380	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1

Used to calculate risk-based groundwater concentration.

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	1.46E+03	1.46E+03	2.95E+04	1.46E+03

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

MESSAGE: Risk/HQ or risk-based groundwater concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663		Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based Indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
2.19E+01	NA	2.19E+01	7.92E+08	2.19E+01

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [ ]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
78933		Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
17	15	274.32	274.32	0	0	A	LS			1.00E-08

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.390	0.049								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	24	24	350	1.0E-05	1
				Used to calculate risk-based groundwater concentration.	

END

RESULTS SHEET

RISK-BASED GROUNDWATER CONCENTRATION CALCULATIONS:

Indoor exposure groundwater conc., carcinogen (µg/L)	Indoor exposure groundwater conc., noncarcinogen (µg/L)	Risk-based indoor exposure groundwater conc., (µg/L)	Pure component water solubility, S (µg/L)	Final indoor exposure groundwater conc., (µg/L)
NA	2.60E+06	2.60E+06	2.23E+08	2.60E+06

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

SCROLL DOWN TO "END"

END

APPENDIX H

EQUATIONS FOR TARGET LEVELS FOR CONSTRUCTION WORKER

DERMAL CONTACT WITH CHEMICALS IN WATER

Carcinogenic effects

$$RBTL_{dw} = \frac{TR \times BW \times AT_c \times 365 \times 1000}{SF_d \times SA_{gw} \times EV_{gw} \times Z \times EF \times ED}$$

Non-carcinogenic effects

$$RBTL_{dw} = \frac{THQ \times BW \times AT_{nc} \times 365 \times 1000 \times RfD_d}{SA_{gw} \times EV_{gw} \times Z \times EF \times ED}$$

For organic chemicals,

If $t_{event} \leq t^*$, then $Z = 2 \times FA \times K_p \sqrt{6\tau_{event} \frac{t_{event}}{\pi}}$

If $t_{event} > t^*$, then $Z = FA \times K_p \left[\frac{t_{event}}{1+B} + 2\tau_{event} \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right]$

For inorganic chemicals, $Z = K_p \times t_{event}$

$$B = K_P \frac{\sqrt{MW}}{2.6}$$

$$\log K_P = -2.80 + 0.66 \log K_{OW} - 0.0056MW$$

If B<0.6 or B=0.6, then, $t^* = 2.4\tau_{event}$

If B>0.6 then, $t^* = 6\tau_{event} \times (b - \sqrt{b^2 - c^2})$

where,

$$c = \frac{1+3B+3B^2}{3(1+B)}$$

$$b = 2 \times \frac{(1+B)^2}{\pi} - c$$

$$\tau_{event} = 0.105 \times 10^{(0.0056MW)}$$

Source: Modified from RAGS, Vol. I, Part E, 2004.

where,

$RBTL_{dw}$	=	Risk-based target level for dermal contact with groundwater [mg/L]
TR	=	Target risk or the increased chance of developing cancer over a lifetime due to exposure to a chemical [-]
THQ	=	Target hazard quotient for individual constituents [-]
BW	=	Body weight [kg]
AT_c	=	Averaging time for carcinogens[year]
AT_{nc}	=	Averaging time for non-carcinogens[year]
SA_{gw}	=	Skin surface area available for contact with water [cm^2]
EV_{gw}	=	Event frequency [event/day]
ED	=	Exposure duration [year]
EF	=	Exposure frequency [day/year]
RfD_d	=	Chemical-specific dermal reference dose [mg/kg-day]
SF_d	=	Chemical-specific dermal cancer slope or potency factor [mg/(kg-day)]$^{-1}$
365	=	Converts AT_c, AT_{nc} in years to days [day/year]
1000	=	Conversion factor from cm^3 to L [cm^3/L]
t_{event}	=	Event duration [hr/event]
t^*	=	Chemical-specific time to reach steady-state [hr]
Z	=	Chemical-specific dermal factor [cm/event]
K_p	=	Chemical-specific dermal permeability coefficient [cm/hr]
FA	=	Chemical-specific fraction absorbed in water [-]
τ_{event}	=	Chemical-specific lag time [hr/event]
B	=	Chemical-specific relative contribution of permeability coefficient [-]
MW	=	Molecular weight [g/mole]
K_{ow}	=	Octanol water partition coefficient [L/kg]
b, c	=	Correlation coefficient which have been fitted to the data from Flynn, G.L. (1990)

OUTDOOR INHALATION OF VAPORS

Carcinogenic effects

$$RBTL_{ao} = \frac{TR \times BW \times AT_c \times 365}{IR_{ao} \times ET_{out} \times ED \times EF \times SF_i}$$

Non-carcinogenic effects

$$RBTL_{ao} = \frac{THQ \times BW \times AT_{nc} \times 365 \times RfD_i}{IR_{ao} \times ET_{out} \times ED \times EF}$$

Source: RAGS, Vol. I, Part A, 1989, p. 6-44

where,

$RBTL_{ao}$	=	Risk-based target level in outdoor air [mg/m^3]
TR	=	Target risk or the increased chance of developing cancer over a lifetime due to exposure to a chemical [-]
THQ	=	Target hazard quotient for individual constituents [-]
BW	=	Body weight [kg]
AT_c	=	Averaging time for carcinogens [year]
AT_{nc}	=	Averaging time for non-carcinogens [year]
IR_{ao}	=	Outdoor inhalation rate [m^3/hr]
ET_{out}	=	Outdoor exposure time [hr/day]
ED	=	Exposure duration [year]
EF	=	Exposure frequency [day/year]
RfD_i	=	Chemical-specific inhalation reference dose [mg/kg-day]
SF_i	=	Chemical-specific inhalation cancer slope or potency factor [(mg/kg-day)$^{-1}$]
365	=	Converts AT_c, AT_{nc} in years to days [day/year]

GROUNDWATER CONCENTRATIONS PROTECTIVE OF OUTDOOR VAPOR INHALATION

$$RBTL_{wi} = \frac{RBTL_{ao}}{VF_{wamb}}$$

where,

$$VF_{wamb} = \frac{H}{1+\left(\frac{100 \times U_m \times \delta_a \times L_{GW}}{W_{ga} \times D_{ws}^{eff}}\right)} \times 10^3$$

$$D_{ws}^{eff} = (h_{cap} + h_v) \times \left[\frac{h_{cap}}{D_{cap}^{eff}} + \frac{h_v}{D_s^{eff}}\right]^{-1}$$

$$D_{cap}^{eff} = D^a \times \frac{\theta_{acap}^{3.33}}{n^2} + D^w \times \frac{1}{H} \times \frac{\theta_{wcap}^{3.33}}{n^2}$$

$$D_s^{eff} = D^a \times \frac{\theta_{as}^{3.33}}{n^2} + D^w \times \frac{1}{H} \times \frac{\theta_{ws}^{3.33}}{n^2}$$

Source: ASTM E1739-95

where,

$RBTL_{wi}$	=	Risk-based target level for indoor inhalation of vapors from groundwater [mg/L-water]
$RBTL_{ao}$	=	Risk-based target level for outdoor inhalation of air (mg/m^3-air)
VF_{wamb}	=	Volatilization factor from groundwater to outdoor air [(mg/m^3-air)/(mg/L-water)]
H	=	Vadose zone chemical specific Henry's Law constant [(L-water)/(L-air)]
U_m	=	Mean annual wind speed [m/s]
δ_a	=	Breathing zone height [cm]
L_{GW}	=	Depth to groundwater [cm]
D_{ws}^{eff}	=	Effective diffusion coefficient between groundwater and soil surface [cm^2/s]
W_{ga}	=	Dimension of soil source area parallel to wind direction [cm]
100	=	Conversion factor [cm/m]
10^3	=	Conversion factor [L/m^3]
h_{cap}	=	Thickness of capillary fringe [cm]
h_v	=	Thickness of vadose zone [cm]
D_{cap}^{eff}	=	Effective diffusion coefficient through capillary fringe [cm^2/s]
D_s^{eff}	=	Effective diffusion coefficient in soil based on vapor-phase concentration [cm^2/s]
D^a	=	Chemical-specific diffusion coefficient in air [cm^2/s]
D^w	=	Chemical-specific diffusion coefficient in water [cm^2/s]
θ_{as}	=	Volumetric air content in vadose zone soils [cm^3-air/cm^3-soil]
θ_{ws}	=	Volumetric water content in vadose zone soils [cm^3-water/cm^3-soil]
n	=	Total soil porosity in the impacted zone [cm^3/cm^3-soil]

θ_{acap} = Volumetric air content in capillary fringe soils [cm^3-air/cm^3-soil]
θ_{wcap} = Volumetric water content in capillary fringe soils [cm^3-water/cm^3-soil]