Appendix 8-A

Conforming Storage Facility
1994 Baseline Sampling

CONFORMING STORAGE FACILITY

BASELINE SAMPLING PLAN

HILL AFB, UT

JANUARY 1994

1.0 SOIL BORINGS AT THE CONFORMING STORAGE FACILITY

1.1 OBJECTIVE

1.1.0.1. The objective of the soil boring program is to collect and analyze soil samples to determine the baseline concentration of metals and organic chemicals in soil beneath and surrounding the proposed Conforming Storage Facility (CSF) at Hill AFB. The soil sampling is a condition for closure of the CSF and is briefly described in Section II.N.10. of Hill's RCRA Hazardous Waste Storage Permit (Part B Permit). At some time in the future, during closure of the CSF, additional soil samples will be collected from the same locations sampled during this soil sampling program to determine if there has been a release of hazardous waste or its constituents into the soil underlying and surrounding the building.

1.1.0.2. The purpose of this work plan is to describe the following:

- soil boring locations
- sampling methods including presampling activities
- the sampling equipment and procedures
- sample handling
- soil sample designation and analysis
- general decontamination procedures
- surveying.

1.2 SOIL BORING LOCATIONS AND RATIONALE

1.2.0.1. The CSF location has been broken into four quadrants, one soil boring will be located in each quadrant. The four soil borings will be drilled and soil collected and analyzed to determine the baseline concentrations of metals in the soil underlying and surrounding the CSF. The soil boring locations are depicted in Figure I-I. Soil Boring SB I-CSF will be drilled in the northeastern quadrant of the CSF. SB2-CSF will be located in the southeastern quadrant of the CSF. SB3-CSF will be located in the northwestern quadrant of the CSF approximately 25 feet west of the facility, and SB4-CSF will be drilled in the southwestern quadrant of the CSF 25 feet west of the footprint of the building. SB3-CSF and SB4-CSF are located downhill from the building. The soil borings will be drilled and sampled during Spring 1994.

1.3 SAMPLING METHODS

1.3.1. Data Management

1.3.1.1. Field data collected during the soil sampling activities will be entered directly into a field notebook and on job-specific forms in a three-ring binder. The field notebook will be maintained throughout the soil sampling activities and will be a weather-resistant, bound, survey-type book, with non-removable pages. All data generated during the investigation and any deviations from this work plan will be explained in detail in the field notebook. The notebook will contain information including: the date, weather conditions, personnel on site, the time of arrival at each borehole location, any unusual conditions encountered while drilling each boring, and total depth of each boring. Soil encountered in each boring will be classified according to the Unified Soil Classification System and logged directly on boring log forms.

1.3.2. Equipment and Procedures

1.3.2.1. Boreholes will be drilled from the ground surface to total depth using a driveable hollow-stem hand grip auger. Decontamination of the drilling equipment to prevent cross contamination of soil samples is discussed in Section 1.5.

1.3.2.2. The driveable hollow-stem hand grip augers used for this drilling program will consist of 3-foot lengths of 3 inch inside diameter (ID) steel pipe.

1.3.2.3. Soil samples will be collected continuously to the total depth in each boring. The soil will be sampled using a clay-bucket auger bit. Soil samples will be removed from the auger bit at the appropriate intervals.

1.3.2.4. Abandonment. Since these boreholes are expected to be devoid of any contamination, cuttings produced during drilling activities will be placed back into each boring. Any remaining open borehole will be filled with available local material.

1.3.2.5. A wooden lath will be installed in each soil boring following abandonment. Printed on the lath will be the boring name and the date it was drilled. Each boring will be surveyed following the procedures in Section 1.6.

1.3.3. Sample Collection for Chemical Analyses

1.3.3.1. Three soil samples will be collected for chemical analysis from each soil boring. The samples will be collected below native ground surface at 0 to I foot, I to 2 feet, and 2 to 4 feet.

1.3.3.2. Soil collected for metals analysis will be taken directly from the sampler and placed in analysis specific containers. Soil samples also will be split from the soil for quality assurance/quality control (QA/QC) purposes at the appropriate intervals.

1.3.3.3. Soil collected for volatile, TPH and PCB analysis will be taken directly from the sampler and placed in analysis specific containers. Soil samples will be split from the sampled soil for quality assurance/quality control (QA/QC) purposes at the appropriate intervals.

1.3.3.4. At the completion of the drilling program, samples from each boring plus the appropriate QA/QC samples will be submitted for analysis. Table 1-1 provides a list of the sample containers to be used during the sampling at the CSF.

1.3.3.5. QA/QC Samples. One blind replicate, matrix spike/matrix spike duplicate (MS/MSD), and equipment rinsate blank will be collected during the CSF soil sampling program, for approximately ten percent of the sample load. Table 1-2 lists the QA/QC samples to be collected during the soil boring program. Soil samples for blind replicate and MS/MSD will be split from the homogenized soil of the appropriate interval. The equipment rinsate blank will be a water sample collected from sampling equipment that is reused from borehole to borehole during the drilling program (e.g., the split spoon sampler, the stainless steel bowl, and the stainless-steel spoons). Distilled water will be poured over the equipment and collected directly into the container listed in Table I-I. All QA/QC samples will be handled, shipped, and analyzed identically to the other environmental samples.

1.3.4. Sample Shipment

1.3.4.1. All soil samples will be placed in a cooler on blue ice. A completed chain-of-custody form will be placed in a zip-lock plastic bag and taped to the lid of each cooler used during the CSF soil sampling program. A standard chain of custody form is depicted in Figure I-2. All coolers will be labeled, sealed with adhesive tape, and hand delivered to the Hill AFB Chemistry Laboratory. The address is: Hill AFB Chemistry Lab, TIEL, Building 100, Hill AFB, UT 84056.

1.3.4.2. To detect any tampering with the soil samples during transportation to the analytical laboratory, a chain-of-custody seal will be placed over the crack between the body of the cooler and the cooler lid and signed by the sampling personnel. The receiving clerk at the laboratory will note if any seals are broken, implying that the cooler has been opened.

1.4 SAMPLE DESIGNATION AND ANALYSIS

1.4.0.1. Soil samples collected during the soil boring program will be designated by the prefix "SB" followed by the borehole number, the relative sample depth (A, B, etc.), the building designation (CSF), and the actual sample depth. Table 1-2 provides a summary of soil samples, including quality control samples, to be collected and analyzed during the soil sampling activities. Section I.3.4. of this document includes the laboratory's address. Table I-I provides a list of soil sample containers, including the size, type, preservatives added, and holding times for each analyte.

1.5 GENERAL DECONTAMINATION PROCEDURES

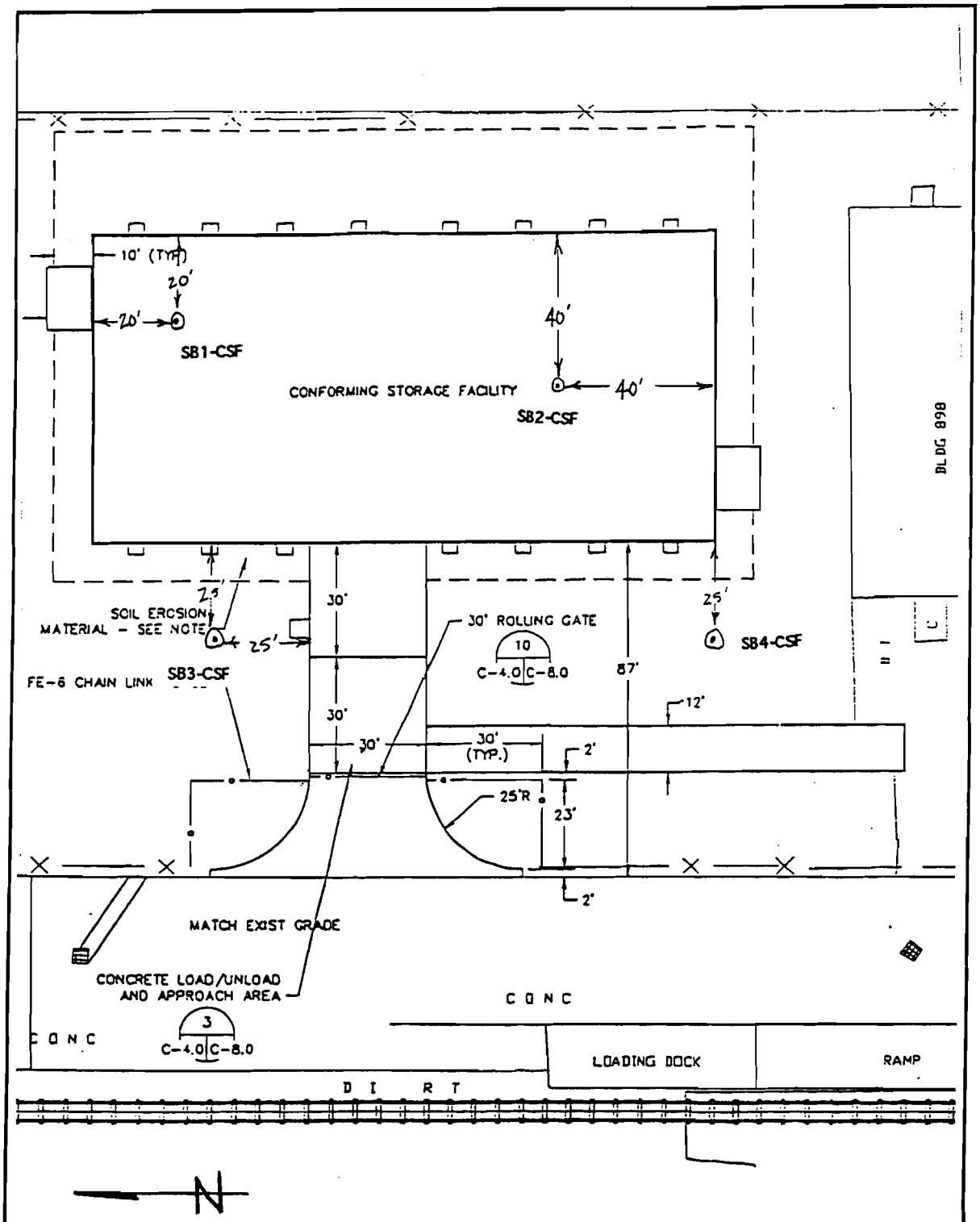
1.5.0.1. All equipment that comes into contact with soil during the drilling and sampling program at the CSF will be decontaminated prior to reuse at the next soil boring location. The equipment decontamination procedures will be:

- Wash in detergent (Alconox) and tap water
- Rinse in clean tap water
- Rinse in isopropanol
- Triple rinse with deionized or distilled water.

1.6 SURVEYING:

1.6.0.1. The surveying will be conducted immediately following the soil sampling program at the proposed CSF. Surveying will be conducted by the Hill AFB Civil Engineering Squadron Surveying Section. A wooden lath will be driven into the center of each soil boring following abandonment. Printed on the lath will be the boring name and the date it was drilled.

1.6.0.2. The surveying section will collect the horizontal and elevation measurements at each soil boring location and report this information Hill AFB Environmental Management. The horizontal control for each measurement will be within +0.1 feet and will be reported in Utah State Plane Coordinates. The vertical control for each measurement will be within +0.01 feet using the National Geodetic Vertical Datum of 1929.



Scale: 1" = 40'

Soil Boring Locations for the Conforming Storage Facility

Figure 1-1

control number 0201

ENVIRONMENTAL
MANAGEMENT DIRECTORATE
HILL AFB UT

CHAIN OF CUSTODY -- SAMPLE ANALYSIS REQUEST

Figure 1-2

Office Symbol:	
project:	
Sampler:	
Phone No.:	
FAX No.	
lab billing no. T-	

sample ID	location ID	depth	date collected	time collected	sample technique*	sample type+	total number of containers	analysis requested (include specific detection limits if required)				remarks / additional information

*sample technique: GR = grab
CO = composite

sample type+: SO = soil
AR = air
EP = leachate
SE = sediment
DS = drum solids
DL = drum liquids
WS = surface water
WG = ground water
SP = seep/spring

analysis results required by:

_____
(date)

report results or problems to:
name: _____
phone: _____

sample relinquished by:	date	time	sample received by:	date	time

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Table 1-1

CONTAINERS REQUIRED FOR SOIL SAMPLING AT THE CONFORMING STORAGE FACILITY

Analysis	Media	Containers	Preservation	Holding Time
Total Metals	Soil	6 oz wide mouth glass container with teflon lined closure	Ice to 4°C	6 Months (except 28 days for mercury)
Rinsate Blank	Water	500-ml poly bottle, full	Ice to 4°C, HNO_3	6 months (except 28 days for mercury)
Volatiles	Soil	2 oz wide mouth glass container with teflon lined closure	Ice to 4° C	14 Days

(a) Total metals with include: arsenic, barium cadmium, chromium, lead, mercury, selenium and silver.
(b) All containers will be kept at 4° C prior to and after sampling.

Table 1-2

SUMMARY OF SOIL SAMPLES TO BE COLLECTED AND ANALYZED

Soil Boring Designation	Sample Designation (a)	Sample Description	Sample Matrix	Analyses
SB1-CSF	SB1A1-CSF	Environmental	Soil	Total Metals
	SB1A2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB1B1-CSF	Environmental	Soil	Total Metals
	SB1B2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB1C1-CSF	Environmental	Soil	Total Metals
	SB1C2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB1C3-MS/MSD	Matrix Spike/Matrix Duplicate	Soil	Total Metals
SB2-CSF	SB2A1-CSF	Environmental	Soil	Total Metals
	SB2A2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB2B1-CSF	Environmental	Soil	Total Metals
	SB2B2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB2B3-MS/MSD	Matrix Spike/Matrix Duplicate	Soil	TPH/Volatiles/ PCBs
	SB2C1-CSF	Environmental	Soil	Total Metals
	SB2C2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
SB3-CSF	SB3A1-CSF	Environmental	Soil	Total Metals
	SB3A2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB3B3-Replicate	Blind Replicate	Soil	TPH/Volatiles/ PCBs
	SB3B1-CSF	Environmental	Soil	Total Metals
	SB3B2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB3C1-CSF	Environmental	Soil	Total Metals
	SB3C2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs

Table 1-2 (continued)

SUMMARY OF SOIL SAMPLES TO BE COLLECTED AND ANALYZED

Soil Boring Designation	Sample Designation	Sample Description	Sample Matrix	Analyses
SB4-CSF	SB4A1-CSF	Environmental	Soil	Total Metals
	SB4A2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB4B1-CSF	Environmental	Soil	Total Metals
	SB4B2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
	SB4C1-CSF	Environmental	Soil	Total Metals
	SB4C2-CSF	Environmental	Soil	TPH/Volatiles/ PCBs
NA	CSF-Rinsate Blank-1	Rinsate Blank	Water	Totals Metals
NA	CSF-Rinsate Blank-1	Rinsate Blank	Water	TPH/Volatiles/ PCBs

(a) Depths of samples (A, B, C) to be determined in the field and included as a sample interval (in feet) at the end of the sample name. In general, A will be the 0 to 1 foot below ground surface (bgs) interval, B will be from 1 to 2 feet bgs and C will be from 2 to 4 feet bgs. MS is a matrix spike and MSD is a matrix spike duplicate.

2.0 HEALTH AND SAFETY PLAN

2.0.0.1. Introduction. A Health and Safety Plan (HASP) establishes the responsibilities, requirements, and procedures for the protection of personnel while on-site during a field investigation. The health and safety requirements for the soil boring program will follow procedures described in the *Health and Safety Plan for Hill AFB Pre-Construction Sampling* as applicable for the soil boring activities described in this work plan. However, for clarity, issues of appropriate personal protective equipment for the CSF field work and tailgate safety meetings are discussed below.

2.0.1. Personal Protective Equipment

2.0.1.1. Health and safety requirements pertaining to personal protective equipment for the CSF site will initially include level D clothing and equipment, although provisions to upgrade to Level C will be made. (Refer to the Health *and Safety Plan for Hill AFB Pre-Construction Sampling* for detail.) Personnel working at the CSF site will wear as a minimum:

- Dedicated work uniform or coveralls, cotton or Tyvek.
- Boots, leather or chemical-resistant neoprene, steel toe - Latex overboots may be put over leather boots.
- Hardhat (required only when drilling or when other overhead hazards exist).
- Gloves (outer), chemical-resistant (nitrile) or leather.
- Gloves (inner), surgical, vinyl or latex (optional)
- Eye protection, face shield, goggles, or safety glasses. Optional during surface soil and sediment sampling due to the minimal eye hazard associated with these activities.

2.0.2. Safety Meetings

2.0.2.1. A safety meeting will be conducted at the beginning of each day in the field. The typical safety meeting will be brief and address the most critical safety issues, such as the types of accidents most likely to occur and areas where improvements need to be made with respect to health and safety. The safety meeting will be documented in the field notebook and signed at the end of the meeting.

3.0 QUALITY ASSURANCE PLAN

3.0.0.1. Introduction. The purpose of a Quality Assurance Plan (QAP) is to define the policy, organization, functional activities, and quality assurance (QA) and quality control (QC) protocols that will be used to meet the data quality objectives (DQOs) for the Conforming Storage Facility soil boring program. The primary use of the data collected during the CSF sampling program will be to evaluate baseline contaminant concentrations in the soil. The data quality objectives and the analytical procedures to be used for the soil samples collected during the soil boring program at the CSF are discussed below.

3.0.1. Data Quality Objectives

3.0.1.1. The overall objective of the soil sampling program described in this document is to establish baseline contaminant concentrations that exist in the soil of the CSF area. At some time in the future, during closure of the CSF, additional soil samples will be collected from the same locations sampled during this investigation to determine if there has been a release of hazardous waste or its constituents into the soil underlying and surrounding the CSF. The data quality objectives for the CSF soil boring field work are the following:

- describe the subsurface lithology
- evaluate a baseline for contaminant concentrations in soil.

3.0.2. Analytical Procedures And Detection Limits

3.0.2.1. All samples collected during this investigation will be analyzed by Hill AFB Chemistry Laboratory. All samples will be prepared and analyzed using EPA Test Methods for Evaluating Solid Waste (SW-846). All results will be reported in, $\mu g/g$.

3.0.3. Data Reporting

3.0.3.1. A brief report will be prepared that summarizes the drilling and sampling activities and presents analytical results. A data summary table will be presented within the text of the report and the raw laboratory data will be included as an appendix to the report.

Background Soil Sampling

Conforming Storage Facility, Hill AFB

Summary Report

Soil samples were taken near the proposed conforming Storage Facility at Hill AFB on May 9, 1994. Four soil borings were advanced by hand auger in the vicinity of the proposed structure. The purpose of this soil boring investigation was to determine the baseline concentration of total metals, volatile organic compounds(VOCs), total petroleum hydrocarbons (TPH), and poly-chlorinated biphenols (PCBs) at the site. The sampling was conducted in accordance with the conforming Storage Facility Baseline Sampling Plan (January 1994). Analyses were completed by Hill AFB personnel at the Hill Chemistry Lab.

Soil samples were collected from each soil boring, as depicted in Figure 1-1 of the Sampling Plan. The investigation area was divided into four quadrants with SS1-CSF located in the northeast quadrant, SB2-CSF in the sourheast quadrant, SB3-CSF in the northwest quadrant and SB4-CSF in the southwest quadrant at the site. Boring methodology involved advancing the soil borings with a hand-grip bucket auger. All soils were similar: dark brown, medium grained sand with gravel. All drilling equipment was thoroughly decontaminated between soil borings to prevent any cross-contamination of soil samples.

Soil samples were collected from three sampling intervals per boring. The first sampling interval was at a depth of 0 to 1 foot below surface grade (BSG) and samples collected at this interval include SB1A1, SB1A2, SB2A1, SB2A2, SB3A1, SB3A2, SB4A1 and SB4A2. The second sample interval was at depth of 1 to 2 feet BSG and samples collected at this interval include SB1B1, SB1B2, SB2B1, SB2B2... etc. The third sample interval was at a depth of 2 to 4 feet BSG and samples collected from this interval include SB1C1, SB1C2, SB2C1, SB2C2... etc. SB1A1 and SB1A2 and similarly paired samples were collected fro the same sample interval and are called "split samples." SB1C3 and SB2B3 were collected as matrix spike/matrix spike duplicate samples. An error in transmitting the analysis request to the lab resulted in SB1C3 and SB2B3 not being used as MS/MSD samples. The lab followed their standard QA/QC protocol and used SB1A1 as the MS/MSD for the sample. In the lab's QA/QC protocol, a certified Perkin-Elmer standard was added to the soil sample just prior to digestion. The raw data for this analysis is attached to this summary report. The MS/MSD is struck out on the raw data sheets to correct this different use of the samples. SB1C3 and SB2B3 actually served as blind duplicate samples of SB1C1 and SB2B1 respectively.

A total of 15 soil samples were analyzed at the laboratory for TPH (by Method 8015 modified for diesel and JP-4), volatile organic compounds (VOCs -by Method 8260), metals (by appropriate methods) and PCBs (by Method 8080). In addition to the soil boring split samples, one equipment rinsate blank was collected in order to confirm the at the decomtamination procedure was thorough. Please note that on several of the VOC raw data sheets, the sample identification number was incorrectly identified. These errors have been corrected for clarity.

Analytical results indicated that VOCs were not present in any of the soil samples at concentrations which exceeded the method detection limits for that particular compound. In addition TPH as diesel and JP-4 were not detected above their respective detection limits. Metals detected in soils at the site include barium (range: 27 to 53 mg/g), cadmium (range: 0.7 to 7.7 mg/g), chromium (range: 5.5 to 22.7 mg/g), copper (range: 2.6 to 280 mg/g), iron (range: 4200 to 7100 mg/g), magnesium (range: 700 to 1700 mg/g) manganese (range: 98 to 180 mg/g), nickel (range: 4.3 to 7.6 mg/g), sodium (range: 48 to 91 mg/g), zinc (range: 12 to 380 mg/g), arsenic (range: 2.7 to 4.3 mg/g), lead (range: 2.4 to 54 mg/g), calcium (range: 1400 to 8700 mg/g), and potassium

(range: 480 to 1000 mg/g). Beryllium, silver and mercury were not detected in any of the samples above the respective detection limits. PCBs were detected in SB2A1 (0.12 mg/g), SB2B1 (0.24 mg/g) SB2B3 (0.23 mg/g) and SB4A1 (0.09 mg/g). A summary of the metals data and a brief staistical analysis of the data are shown at Attachment 1.

The supplied laboratory QA/QC indicated that surrogate spike recoveries, and interference standard recoveries were within laboratory control limits, and all samples were analyzed within the associated method holding times.

The data generated from this sampling effort will be retain for use as background data should closure action be required at the facility.

Attachments:
1. Statistical Summary
2. Sample Logs
3. Chain of Custody Sheets
4. Raw Data

Summary of Background Data for Hill AFB Conforming Storage Facility

Summary statistics for Barium

Mean 40.866667
StdDev 7.7077574
Range 27
Min 27
Max 54

Summary statistics for Beryllium

Mean 0.01000000
StdDev 0
Range 0
Min 0.01000000
Max 0.01000000

Summary statistics for Cadmium

Mean 3.1071429
StdDev 3.3690250
Range 7.6500000
Min 0.05000000
Max 7.7000000

Summary statistics for Chromium

Mean 9.4866667
StdDev 4.6033942
Range 17.200000
Min 5.5000000
Max 22.700000

Summary statistics for Copper

Mean 30.786667
StdDev 69.832871
Range 277.40000
Min 2.6000000
Max 280

Summary statistics for Iron

Mean 5673.3333
StdDev 756.36978
Range 2900
Min 4200
Max 7100

Summary statistics for Magnesium

Mean 1117.3333
StdDev 249.44128
Range 1000
Min 700
Max 1700

Summary statistics for Manganese

Mean 148.53333
StdDev 22.315487
Range 82
Min 98
Max 180

Summary statistics for Nickel

Mean 5.8333333
StdDev 1.0139503
Range 3.3000000
Min 4.3000000
Max 7.6000000

Summary statistics for Silver

Mean 1
StdDev 0
Range 0
Min 1
Max 1

Summary statistics for Sodium

Mean 21.066667
StdDev 26.015014
Range 84
Min 7
Max 91

Summary statistics for Zinc

Mean 56
StdDev 93.006912
Range 368
Min 12
Max 380

Summary statistics for Arsenic

Mean 3.3266667
StdDev 0.43828671
Range 1.6000000
Min 2.7000000
Max 4.3000000

Summary statistics for Selenium

Mean 0.10000000
StdDev 0.00000000
Range 0
Min 0.10000000
Max 0.10000000

Summary statistics for Lead

Mean 21.453333
StdDev 22.017846
Range 51.600000
Min 2.4000000
Max 54

Summary statistics for Mercury

Mean 0.05000000
StdDev 0.00000000
Range 0
Min 0.05000000
Max 0.05000000

Summary statistics for Calcium

Mean 2093.3333
StdDev 1839.4357
Range 7300
Min 1400
Max 8700

Summary statistics for Potassium

Mean 796.66667
StdDev 134.41230
Range 520
Min 480
Max 1000

Raw Data--Metals Analysis

Sample Numbers	Ba	Be	Cd	Cr	Cu	Fe	Mg	Mn	Ni	Au	Na	Zn	Ar	Se	Pb	Hg	Ca	K
SB1A1	41	0.01	0.05	6.7	4.8	5500	1000	160	5.4	1	7	19	2.8	0.1	4.9	0.05	1600	860
SB1B1	38	0.01	0.05	6.8	4	5600	1000	140	5	1	7	18	3.5	0.1	3.7	0.05	1500	790
SB1C1	32	0.01	0.05	6.8	3.3	5500	1100	130	5.9	1	7	14	3.4	0.1	3	0.05	1600	710
SB1C3	32	0.01	0.05	6.4	3.2	5300	1100	130	5.2	1	7	14	3.7	0.1	3	0.05	1600	700
SB2A1	47	0.01	7.7	22.7	280	5900	1200	150	7	1	7	380	3.4	0.1	47	0.05	1500	860
SB2B1	53	0.01	7.3	13	31	5400	1000	140	6.9	1	91	69	3.6	0.1	46	0.05	2100	860
SB2B3	45	0.01	7.1	15	32	6300	1100	150	7	1	48	97	2.7	0.1	52	0.05	2100	770
SB2C1	34	0.01	3.1	8.1	25	4700	760	120	5.3	1	7	25	3.3	0.1	10	0.05	1600	580
SB3A1	41	0.01	3.3	9.1	13	6700	1400	170	7.6	1	7	30	3.9	0.1	35	0.05	1600	930
SB3B1	40	0.01	0.05	6.8	4.8	5400	1000	160	4.9	1	7	18	3	0.1	4	0.05	1500	880
SB3B3	40	0.01	0.05	6.3	4.8	5300	1200	160	5.1	1	7	18	3.1	0.1	3.9	0.05	1400	830
SB3C1	27	0.01	<0.5	5.5	2.6	4200	700	98	4.3	1	7	12	3.3	0.1	2.4	0.05	1600	480
SB4A1	54	0.01	6.4	12	27	7100	1700	170	6.9	1	52	64	3.1	0.1	54	0.05	8700	810
SB4B1	41	0.01	7.6	10	21	6600	1400	170	6.1	1	48	40	4.3	0.1	48	0.05	1600	1000
SB4C1	48	0.01	0.7	7.1	5.3	5600	1100	180	4.9	1	7	22	2.8	0.1	4.9	0.05	1400	890

Notes:
Data for Be, Au, Se and Hg are reported as 1/2 of the Method Detection Limit

Other non-detect data reported as 1/2 of the Method Detection Limit

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF

Sample No.: CSF Rinsate Blank 1 **Sampler:** IAD/PF

Date: 5/9/94 **Time:** 1045

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: Equipment Rinse

Depth/Elevation: NA

Soil Type: NA

Field Organic Vapor Analysis: NA

Sampling Method: Equipment Rinse

Notes and Deviation from Sampling Plan:

2 - 40 ml glass vials for volatiles

1 - 1 L glass bottle preserved with HNO_3 for metals

1 - 1 L plastic bottle for TPH and PCBs

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB1)

Sample No.: (1) SB1A1-CSF (2) SB1B1-CSF **Sampler:** IAD/PF

SB1A2-CSF SB1B2-CSF

Date: 5/9/94 **Time:** (1) 0830

(2) 0840

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - NE corner

Depth/Elevation: (1) 0- to 1-foot interval (2) 1- to 2- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) No reading taken

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

0815 - Arrive at DRMO

0835 - Calibrated photo-ionization detector (PID) in accordance with manufacturer's instructions.

0855 - Begin equipment decontamination

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB1)

Sample No.: (1) SB1C1-CSF (2) SB1C3-MS/MSD **Sampler:** IAD/PF

SB1C2-CSF SB1C3-MS/MSD

Date: 5/9/94 **Time:** (1) 0850

(2) 0850

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - NE corner

Depth/Elevation: (1) 2- to 4-foot interval (2) 2- to 4- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB2)

Sample No.: (1) SB2A1-CSF (2) SB2B1-CSF **Sampler:** IAD/PF

SB2A2-CSF SB2B2-CSF

Date: 5/9/94 **Time:** (1) 0905

(2) 0910

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - SE corner

Depth/Elevation: (1) 0- to 1-foot interval (2) 1- to 2- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

0900 arrive at SB2

0930 begin equipment decontamination

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB2)

Sample No.: (1) SB2B3-MS/MSD (2) SB2C1-CSF **Sampler:** IAD/PF

SB2B3-MS/MSD SB2C2-CSF

Date: 5/9/94 **Time:** (1) 0910 [1]

(2) 0925

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - SE corner

Depth/Elevation: (1) 1- to 2-foot interval (2) 2- to 4- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

[1] SB2B3-MS/MSD is associated with SB2B1 and SB2B2.

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB3)

Sample No.: (1) SB3A1-CSF (2) SB3B1-CSF **Sampler:** IAD/PF

SB3A2-CSF SB3B2-CSF

Date: 5/9/94 **Time:** (1) 0940

(2) 0950

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - NW corner

Depth/Elevation: (1) 0- to 1-foot interval (2) 1- to 2- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

0935 arrive at SB3

0945 need to recalibrate PID

1010 begin equipment decontamination

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB3)

Sample No.: (1) SB3B3-CSF[1] (2) SB3C1-CSF SB3C2-CSF **Sampler:** IAD/PF

Date: 5/9/94 **Time:** (1) 0955 (2) 1005

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - NW corner

Depth/Elevation: (1) 1- to 2-foot interval (2) 2- to 4- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

[1] SB3B3-CSF is a blind duplicate of SB3B2-CSF.

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB4)

Sample No.: (1) SB4A1-CSF (2) SB4B1-CSF **Sampler:** IAD/PF

SB4A2-CSF SB4B2-CSF

Date: 5/9/94 **Time:** (1) 1015

(2) 1025

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - SW corner

Depth/Elevation: (1) 0- to 1-foot interval (2) 1- to 2- foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

(2) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

(2) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

(2) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

1010 arrive at SB4

1035 begin equipment decontamination

1100 leave site

HILL AIR FORCE BASE

PRECONSTRUCTION SAMPLING

Project: DRMO - CSF (SB4)

Sample No.: (1) SB4C1-CSF **Sampler:** IAD/PF

SB4C2-CSF

Date: 5/9/94 **Time:** (1) 1030

Weather: Sunny, 70° F, no precipitation (24 hrs)

Location: See map - SW corner

Depth/Elevation: (1) 2- to 4-foot interval

Soil Type: (1) dark brown, medium grained sand with gravel

Field Organic Vapor Analysis: (1) 0.0 ppm

Sampling Method: (1) Hand auger and latex gloves

Notes and Deviation from Sampling Plan:

control number 0155

ENVIRONMENTAL MANAGEMENT DIRECTORATE
HILL AFB UT

CHAIN O. USTODY -- SAMPLE ANALYSIS REQUEST

Office Symbol:	00-ALC/EME
project:	PRECON
Sampler:	Ingrid Wo. Klaus
Phone No.:	7-6917
FAX No.	7-4306
lab billing no.	T- 8441 I.

analysis requested (include specific detection limits if required)

	sample ID	location ID	depth	date collected	time collected	sample technique*	sample type+	total number of containers	TPH	Volatiles	Metals	PCB	remarks / additional information
1	SB1A1-CSF SB1A2-CSF	Near Bldg. 898	1'	5/9/94	0830	GR	SO	2	X	X	X	X	Project #: 028-94
2	SB1B1-CSF SB1B2-CSF	" 898	1-2'	5/9/94	0840	GR	SO	2	X	X	X	X	"
3	SB1C1-CSF SB1C2-CSF	" 898	2-4'	5/9/94	0850	GR	SO	2	X	X	X	X	"
4	SB1C3-MS SB1C3-MS	" 898	2-4'	5/9/94	0850	GR	SO	2	X	X	X	X	028-94
5	SB2A1-CSF SB2A2-CSF	" 898	1'	5/9/94	0905	GR	SO	2	X	X	X	X	029-94
6	SB2B1-CSF SB2B2-CSF	" 898	1-2'	5/9/94	0910	GR	SO	2	X	X	X	X	"
7	SB2B3-MS SB2B3-MS	" 898	1-2'	5/9/94	0910	GR	SO	2	X	X	X	X	"
8	SB2C1-CSF SB2C2-CSF	" 898	2-4'	5/9/94	0925	GR	SO	2	X	X	X	X	029-94
9	SB3A1-CSF SB3A2-CSF	" 898	1'	5/9/94	0940	GR	SO	2	X	X	X	X	030-94
10	SB3B1-CSF SB3B2-CSF	" 898	1-2'	5/9/94	0950	GR	SO	2	X	X	X	X	"

*sample technique: GR = grab, CO = composite

sample type+: SO = soil, AR = air, EP = leachate, SE = sediment, DS = drum solids, DL = drum liquids, WS = surface water, WG = ground water, SP = seep/spring

analysis results required by: 26 May 94 (date)

sample relinquished by:	date	time	sample received by:	date	time
Ingrid Klaus	5/9/94	1345	[illegible]	5/9/94	1345

report results or problems to:
name: Emily Bonanni
phone: 7-6917

Sep 93

☆ GPO: 1993 573-600

control number
0156

ENVIRONMENTAL
MANAGEMENT DIRECTORATE
HILL AFB UT

CHAIN OF CUSTODY -- SAMPLE ANALYSIS REQUEST

Office Symbol:	OO-ALC/EMR
project:	PRECON
Sampler:	Ingrid DeKlaw
Phone No.:	7-6917
FAX No.	7-4306
lab billing no.	T- 8741 I-

	sample ID	location ID	depth	date collected	time collected	sample technique*	sample type+	total number of containers	TPH	Volatiles	metals	PCB's	remarks / additional information: Project #
	~~SB883-CSF~~	Near Bldg 898	1-2'	5/9/95	0955	GR	SO	1	X	[illegible]	X	X	030-94
(5)	SB3C2-CSF	" 898	2-4'	5/9/95	1005	GR	SO	2	X	X	X	X	030-94
(1)	SB4A2-CSF	" 898	1'	5/9/95	1015	GR	SO	2	X	X	X	X	031-94
(2)	SB4B2-CSF	" 898	1-2'	5/9/95	1025	GR	SO	2	X	X	X	X	031-94
(1)	SB4C2-CSF	" 898	2-4	5/9/95	1030	GR	SO	2	X	X	X	X	031-94
X	CSF R.B.1	" 898	-	5/9/95	1045	—	W	4	X	X	X	X	Equipment Rinse 032
	0018-94	Bldg 710	4'8"	5/9/95	1245	GR	SO	2	X	X			021-94
	0019-94	Bldg 711	4'3"	5/9/95	1300	GR	SO	2	X	X			022-94

*sample technique: GR = grab, CO = composite

sample type+: SO = soil, AR = air, EP = leachate, SE = sediment, DS = drum solids, DL = drum liquids, WS = surface water, WG = ground water, SP = seep/spring

analysis results required by: 26 May 94 (date)

sample relinquished by:	date	time	sample received by:	date	time
[illegible]	5/9/95	1345	[illegible]	5/9/94	1345

report results or problems to:
name: Emily Bonanni
phone: 7-6917

Sep 93

☆ GPO: 1993 573-600

PCB Report Form

From: Hill AFB
TIELC/S. Heavin
Subject: PCB Analysis
Attn:EME/ Emily Bonanni

Project: 94-1227
Samples: 44291 – 44309

Method: 8080

Field Number	Lab Number	Analyte (PCB)	Conc. ug/g	MDL ug/g
SB1A1	44291	1260	< 0.05	0.05
SB1B1	44292	ND	< 0.05	0.05
SB1C1	44293	ND	< 0.05	0.05
SB1C3	44294	ND	< 0.05	0.05
SB2A1	44295	1260	0.12	0.05
SB2B1	44296	1260	0.24	0.05
SB2B3	44297	1260	0.23	0.05
SB2C1	44298	ND	< 0.05	0.05
SB3A1	44299	ND	< 0.05	0.05
SB3B1	44300	ND	< 0.05	0.05
SB3B3	44301	ND	< 0.05	0.05
SB3C1	44302	ND	< 0.05	0.05
SB4A1	44303	1260	0.09	0.05
SB4B1	44304	1260	< 0.05	0.05
SB4C1	44305	ND	< 0.05	0.05
Blank (water)	44307	ND	< 0.7 ug/L	0.7 ug/L
0018-94	44308	ND	< 0.05	0.05
0019-94	44309	ND	< 0.05	0.05

Notes: None

Completion: 11-Jul-94

Chemist: Scott D. Heavin

Lab Supervisor: R. Eugene Perkins

TPH & BTEX
REPORT FORM

REPLY TO
ATTN OF: TIELC

DATE COLLECTED: 9 May 1994
DATE BTEX ANALYZED: N/A
DATE DIESEL ANALYZED: 15 June 1994
DATE JP-4/GASOLINE ANALYZED: 6 June 1994

SUBJECT: Soil Analysis
TO: EME, ATTN Emily Bonanni

Sample Number / Field Number	44291 SB1A1 -CSF	44292 SB1B1 -CSF	44293 SB1C1 -CSF	44294 SB1C2 -MS	44295 SB2A1 -CSF	MDL ug/g
Benzene SW 8020S	N/A	N/A	N/A	N/A	N/A	N/A
Toluene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Ethyl Benzene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Xylene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Diesel Modified 8015	< 9.0	< 9.0	< 9.0	< 9.0	< 9.0	9.0
JP-4 Modified 8015	<10.0	<10.0	<10.0	<10.0	<10.0	10.0
% Moisture	5.6	6.3	6.7	6.0	5.2	

Kam Patterson
Analyst/Chemist

21 June 1994
Date Reported

for Ch, Chem Sci Lab Team, Tech and Ind Sup Dir

TPH & BTEX
REPORT FORM

REPLY TO
ATTN OF: TIELC

DATE COLLECTED: 9 May 1994
DATE BTEX ANALYZED: N/A
DATE DIESEL ANALYZED: 15 June 1994
DATE JP-4/GASOLINE ANALYZED: 6 June 1994

SUBJECT: Soil Analysis
TO: EME, ATTN Emily Bonanni

Sample Number / Field Number	44296 SB2B1 -CSF	44297 SB2B3 -MS	44298 SB2C1 -CSF	44299 SB3A1 -CSF	44300 SB3B1 -CSF	MDL ug/g
Benzene SW 8020S	N/A	N/A	N/A	N/A	N/A	N/A
Toluene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Ethyl Benzene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Xylene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Diesel Modified 8015	< 9.0	< 9.0	< 9.0	< 9.0	< 9.0	9.0
JP-4 Modified 8015	<10.0	<10.0	<10.0	<10.0	<10.0	10.0
% Moisture	5.3	5.6	6.2	4.1	4.5	

Kay Patterson
Analyst/Chemist

21 June 1994
Date Reported

Ch, Chem Sci Lab Team, Tech and Ind Sup Dir

TPH & BTEX
REPORT FORM

REPLY TO
ATTN OF: TIELC

DATE COLLECTED: 9 May 1994
DATE BTEX ANALYZED: N/A
DATE DIESEL ANALYZED: 15 June 1994
DATE JP-4/GASOLINE ANALYZED: 6 June 1994

SUBJECT: Soil Analysis
TO: EME, ATTN Emily Bonanni

Sample Number / Field Number	44301 SB3B3 -CSF	44302 SB3C1 -CSF	44303 SB4A1 -CSF	44304 SB4B1 -CSF	44305 SB4C1 -CSF	MDL ug/g
Benzene SW 8020S	N/A	N/A	N/A	N/A	N/A	N/A
Toluene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Ethyl Benzene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Xylene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene SW 8020	N/A	N/A	N/A	N/A	N/A	N/A
Diesel Modified 8015	< 9.0	< 9.0	< 9.0	< 9.0	< 9.0	9.0
JP-4 Modified 8015	<10.0	<10.0	<10.0	<10.0	<10.0	10.0
% Moisture	4.9	4.2	5.1	4.3	4.4	

Ken Patterson
Analyst/Chemist

21 June 1994
Date Reported

for Ch, Chem Sci Lab Team, Tech and Ind Sup Dir

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44310	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB1A2-CSP	4.197g / 8mL MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDDE.095	1.3-DICHLOROPROPANE	NDDE .095
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
1,2-DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDDE.095
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDDE .19
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE		VINYL CHLORIDE	NDDE.19
M-XYLENE/P-XYLENE	NDDE.095		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	111	79.9 -123.7
TOLUENE-D8	110	72.5 -123.8
BROMOFLUOROBENZENE	100	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EME / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44311	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB182-CSF	4.070 / 8 mL MeOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDOE.098	1.3-DICHLOROPROPANE	NDOE.098
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1 ^-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDOE.098
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDOE.20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE		VINYL CHLORIDE	NDOE.20
M-XYLENE/P-XYLENE	NDOE.098		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	119	79.9 -123.7
TOLUENE-D8	112	72.5 -123.8
BROMOFLUOROBENZENE	103	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94- 1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EHE/ Emily Bonanni	FROM : TIELC
SAMPLE NO: 44312 (SB1C2-CSF) NTC	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB1CS2-CSF	4.50 1g / 8 mL MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDDE .089	1.3-DICHLOROPROPANE	NDDE .089
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
[illegible] DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
[illegible] ICHLOROETHANE		1,1,1-TRICHLOROETHANE	
1,[illegible] DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDDE .089
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDDE .18
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
0-XYLENE		VINYL CHLORIDE	NDDE .18
M-XYLENE/P-XYLENE	NDDE .089		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	113	79.9 -123.7
TOLUENE-D8	109	72.5 -123.8
BROMOFLUOROBENZENE	96	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[illegible]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 10 May 94
: EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44313	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB1C3 ~~-MS/MSD~~ 4.1369/8 HLS MEOH	
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDOE .10	1.3-DICHLOROPROPANE	NDOE .10
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1 -DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDOE .10
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDOE .20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLURROMETHANE	
0-XYLENE		VINYL CHLORIDE	NDOE .20
M-XYLENE/P-XYLENE	NDOE .10		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	116	79.9 -123.7
TOLUENE-D8	112	72.5 -123.8
BROMOFLUOROBENZENE	100	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EME / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44314	DATE OF SAMPLE : 10 May 94
SAMPLE IDENTIFICATION : 982A2-CSF	4.188g / 8 mL MeOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDOE .10	1.3-DICHLOROPROPANE	NDOE .10
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
[illegible] DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
[illegible] DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
[illegible] DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDOE .10
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDOE .20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE		VINYL CHLORIDE	NDOE .20
M-XYLENE/P-XYLENE	NDOE .10		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1.2-DICHLORETHANE-D4	114	79.9 -123.7
TOLUENE-D8	106	72.5 -123.8
BROMOFLUOROBENZENE	99	74.5 -121.1

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[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

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VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
:EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44315	DATE OF SAMPLE : 10 May 94
SAMPLE IDENTIFICATION : 9B2B2-CSF	4.603/8 mls MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDDE .087	1.3-DICHLOROPROPANE	NDDE .087
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1,4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDDE .087
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDDE .17
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE		VINYL CHLORIDE	NDDE .17
M-XYLENE/P-XYLENE	NDDE .087		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS:

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	103	79.9 -123.7
TOLUENE-D8	104	72.5 -123.8
BROMOFLUOROBENZENE	95	74.5 -121.1

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VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
EHE / Emily Bowanni	FROM : TIELC
SAMPLE NO: 44316	DATE OF SAMPLE : 10 May 94
SAMPLE IDENTIFICATION : SB283-~~115/115B~~ DSC	4.189 g / 18 ml MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDOE .095	1.3-DICHLOROPROPANE	NDOE .045
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1,4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
1 ICHLOROETHANE		1,1,1-TRICHLOROETHANE	
1 ICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDOE .095
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDOE .19
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLURROMETHANE	
0-XYLENE		VINYL CHLORIDE	NDOE .19
M-XYLENE/P-XYLENE	NDOE .095		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	109	79.9 -123.7
TOLUENE-D8	101	72.5 -123.8
BROMOFLUOROBENZENE	98	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

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VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EME / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44317 (SB2C2-CSF)	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB2CS-CSF 4.356 g / 8 mL MeOH	
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDOE .092	1,3-DICHLOROPROPANE	NDOE .092
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
-,-DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDOE .092
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDOE .18
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
0-XYLENE		VINYL CHLORIDE	NDOE .18
M-XYLENE/P-XYLENE	NDOE .092		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	104	79.9 -123.7
TOLUENE-D8	100	72.5 -123.8
BROMOFLUOROBENZENE	91	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

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VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44318 (SB3A2-CSF) BK	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SBA2-CSF 4.122 g / 8 mL MEOH	
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NODE .097	1.3-DICHLOROPROPANE	NODE .097
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1 DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
1, DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NODE .097
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NODE .19
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLURROMETHANE	
O-XYLENE		VINYL CHLORIDE	NODE .19
M-XYLENE/P-XYLENE	NODE .097		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1.2-DICHLORETHANE-D4	113	79.9 -123.7
TOLUENE-D8	107	72.5 -123.8
BROMOFLUOROBENZENE	97	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

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VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44319	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : 3B3B2-C3F	4.100 g / 8 mL MeOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDOE .098	1.3-DICHLOROPROPANE	NDOE .098
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1 [illegible]-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
[illegible]ICHLOROETHANE		1,1,1-TRICHLOROETHANE	
1 [illegible]ICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDOE .098
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDOE .20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE		VINYL CHLORIDE	NDOE .20
M-XYLENE/P-XYLENE	NDOE .098		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	113	79.9 -123.7
TOLUENE-D8	115	72.5 -123.8
BROMOFLUOROBENZENE	110	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

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VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
TO : SME / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44320 (SB3CZ-CSF)	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB31CS-CSF	4.079g / 8 mL MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDDE .098	1.3-DICHLOROPROPANE	NDDE .098
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1,4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
1 TCHLOROETHANE		1,1,1-TRICHLOROETHANE	
1 ICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDDE .098
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDDE .20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
0-XYLENE		VINYL CHLORIDE	NDDE .20
M-XYLENE/P-XYLENE	NDDE .098		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	120	79.9 -123.7
TOLUENE-D8	104	72.5 -123.8
BROMOFLUOROBENZENE	92	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature] for	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
ENE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44321	DATE OF SAMPLE : 10 May 94
SAMPLE IDENTIFICATION : 5B4A2-CSF / 4,456 g / 8 mls	
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NODE .090	1.3-DICHLOROPROPANE	NODE .090
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1,4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
1 DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
ICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1, -DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NODE .090
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NODE .18
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE	NODE .090	VINYL CHLORIDE	NODE .18
M-XYLENE/P-XYLENE			

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	105	79.9 -123.7
TOLUENE-D8	104	72.5 -123.8
BROMOFLUOROBENZENE	98	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE		DATE
[signature]	[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44322 (SB482-CSF) DL	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : SB48S-CSF	4.0589/18 ML MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NODE .099	1.3-DICHLOROPROPANE	NODE .099
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1 4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NODE .099
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NODE .20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLURROMETHANE	
0-XYLENE		VINYL CHLORIDE	NODE .20
M-XYLENE/P-XYLENE	NODE .099		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1.2-DICHLORETHANE-D4	102	79.9 -123.7
TOLUENE-D8	104	72.5 -123.8
BROMOFLUOROBENZENE	96	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
[signature]	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EHE / Emily Bonanni	FROM : TIELC
SAMPLE NO: 44323 (SB4C2-CSF) DSC	DATE OF SAMPLE : 9 May 94
SAMPLE IDENTIFICATION : 964CS-CSF	4.172 g / 8 mls MEOH
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NDDE.10	1.3-DICHLOROPROPANE	NDDE.10
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1,4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NDDE.10
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NDDE.20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLUROROMETHANE	
O-XYLENE		VINYL CHLORIDE	NDDE.20
M-XYLENE/P-XYLENE	NDDE.10		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	100	79.9 -123.7
TOLUENE-D8	111	72.5 -123.8
BROMOFLUOROBENZENE	118	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

VOLATILE ORGANICS ANALYSIS	PROJECT NO. 94-1227
METHOD 8260	DATE OF ANALYSIS : 17 May 94
: EHE/ Emily Bonanni	FROM : TIRC
SAMPLE NO: 44324	DATE OF SAMPLE : 10 May 94
SAMPLE IDENTIFICATION : CSF Rinse sat / Blank 5mls	
DILUTION FACTOR :	

COMPOUND	PPM	COMPOUND	PPM
BENZENE	NODE .10	1.3-DICHLOROPROPANE	NODE .10
BROMOBENZENE		2,2-DICHLOROPROPANE	
BROMOCHLORMETHANE		1,1-DICHLOROPROPENE	
BROMODICHLOROMETHANE		CIS-1,3-DICHLOROPROPENE	
BROMOFORM		TRANS-1,3-DICHLOROPROPENE	
N-BUTYLBENZENE		ETHYLBENZENE	
SEC-BUTYLBENZENE		HEXACHLOROBUTADIENE	
TERT-BUTYLBENZENE		ISOPROPYLBENZENE	
CARBON TETRACHLORIDE		4-ISOPROPYLTOLUENE	
CHLOROBENZENE		METHYLENE CHLORIDE	
CHLOROFORM		NAPHTHALENE	
2-CHLOROTOLUENE		N-PROPYLBENZENE	
4-CHLOROTOLUENE		STYRENE	
DIBROMOCHLOROMETHANE		1,1,1,2-TETRACHLOROETHANE	
1,2-DIBROMO-3-CHLOROPROPANE		1,1,2,2-TETRACHLOROETHANE	
1,2-DIBROMETHANE		TETRACHLOROETHENE	
DIBROMOMETHANE		TOLUENE	
1,2-DICHLOROBENZENE		1,2,3-TRICHLOROBENZENE	
1,4-DICHLOROBENZENE		1,2,4-TRICHLOROBENZENE	
-DICHLOROETHANE		1,1,1-TRICHLOROETHANE	
DICHLOROETHANE		1,1,2-TRICHLOROETHANE	
1,1-DICHLOROETHENE		TRICHLOROETHENE	
CIS-1,2-DICHLOROETHENE		TRICHLOROFLUOROMETHANE	NODE .10
TRANS-1,2-DICHLOROETHENE		BROMOMETHANE	NODE .20
1,2-DICHLOROPROPANE		CHLOROETHANE	
1,2,3-TRICHLOROPROPANE		CHOROMETHANE	
1,2,4-TRIMETHYLBENZENE		DICHLORODIFLUOROMETHANE	
1,3,5-TRIMETHYLBENZENE		TRICHLOROFLURROMETHANE	
0-XYLENE		VINYL CHLORIDE	NODE .20
M-XYLENE/P-XYLENE	NODE .10		

OTHER COMPOUND PRESENT:

(+) TENTATIVELY IDENTIFIED, CONCENTRATION IS APPROXIMATE

COMMENTS :

SURROGATE SPIKE RECOVERIES

COMPOUNDS	% RECOVERY	CONTROL LIMITS
1,2-DICHLORETHANE-D4	109	79.9 -123.7
TOLUENE-D8	108	72.5 -123.8
BROMOFLUOROBENZENE	100	74.5 -121.1

AUTHORIZED SIGNATURE	TITLE	DATE
	G. EUGENE LARKIN CH.CHEM SCI LAB TEAM TECH & IND SUP DIR	25 May 94

*current 29 mar 94

soils.wk3

Soil Analysis

Attn: TIELC
Subject: Total Metals
To: EME, Attn. Enily Bonanni

Project: 94-1227
Samples: 44291 Thru 44306
44308 Thru 44309
Sampled: 12 May 1994

Digestion: Hot Plate (3050)

Metal	S. Y. M.	MDL ug/g	EPA Method	EME Sample SB1A1 CSF ug/g	EME Sample SB1B1 CSF ug/g	EME Sample SB1C1 CSF ug/g	EME Sample SB1C3 ~~MS/MSD~~ ug/g	EME Sample SB2A1 CSF ug/g	%R0	%R1	%R2	%R3
Barium	Ba	0.4	6010	41	38	32	32	47	0.1	103	101	97
Beryllium	Be	0.02	6010	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.1	95	103	97
Cadmium	Cd	0.1	6010	< 0.5	< 0.5	< 0.5	< 0.5	7.7	0.2	99	100	98
Chromium	Cr	0.6	6010	6.7	6.8	6.8	6.4	22.7	1.9	100	105	98
Copper	Cu	0.7	6010	4.8	4.0	3.3	3.2	280	0.6	103	99	97
Iron	Fe		6010	5500	5600	5500	5300	5900	0.6			96
Magnesium	Mg	15	6010	1000	1000	1100	1100	1200	2.6			102
Manganese	Mn	0.9	6010	160	140	130	130	150	0.9	103	104	103
Nickel	Ni	0.8	6010	5.4	5.0	5.9	5.2	7.0	1.4	95	100	98
Silver	Ag	2	6010	< 6	< 6	< 6	< 6	< 6	2.7	102	96	98
Sodium	Na	14	6010	< 42	< 42	< 42	< 42	< 42				
Zinc	Zn	0.4	6010	19	18	14	14	380	0.4	105	103	98
Arsenic	As	0.04	206.2	2.8	3.5	3.4	3.7	3.4	0.1		92	99
Selenium	Se	0.2	270.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	4.5		89	99
Lead	Pb	0.2	239.3	4.9	3.7	3.0	3.0	47	4.2		102	103
Mercury	Hg	0.1	7471	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	4.3		103	100
Calcium	Ca	11	215.1	1600	1500	1600	1600	1500	9.7			103
Potassium	K	17	258.1	860	790	710	700	860	6.1			101

15-Jun-94
Completion Date

Results based on sample dry weight ..
Comments

Chemist

Lab Supervisor

QC Officer

MDL = Method Detection Limit
%R0 = Percent Relative Difference
%R1 = Percent Interference Check Standard
%R2 = Percent Spike Recovery
%R3 = Percent Standard Recovery

CC:

Soil Analysis

Attn: TIELC
Subject: Total Metals
To: EME, Attn. Enily Bonanni

Project: 94-1227
Samples: 44291 Thru 44306
44308 Thru 44309
Sampled: 12 May 1994

Digestion: Hot Plate (3050)

Metal	S. Y. M.	MDL ug/g	EPA Method	EME Sample SB2B1 CSF ug/g	EME Sample SB2B3 ~~MS/MSD~~ ug/g	EME Sample SB2C1 CSF ug/g	EME Sample SB3A1 CSF ug/g	EME Sample SB3B1 CSF ug/g	%R0	%R1	%R2	%R3
Barium	Ba	0.4	6010	53	45	34	41	40	0.1	103	101	97
Beryllium	Be	0.02	6010	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.1	95	103	97
Cadmium	Cd	0.1	6010	7.3	7.1	3.1	3.3	< 0.5	0.2	99	100	98
Chromium	Cr	0.6	6010	13	15	8.1	9.1	6.8	1.9	100	105	98
Copper	Cu	0.7	6010	31	32	25	13	4.8	0.6	103	99	97
Iron	Fe		6010	5400	6300	4700	6700	5400	0.6			96
Magnesium	Mg	15	6010	1000	1100	760	1400	1000	2.6			102
nganese	Mn	0.9	6010	140	150	120	170	160	0.9	103	104	103
kel	Ni	0.8	6010	6.9	7.0	5.3	7.6	4.9	1.4	95	100	98
Silver	Ag	2	6010	< 6	< 6	< 6	< 6	< 6	2.7	102	96	98
Sodium	Na	14	6010	91	48	< 42	< 42	< 42				
Zinc	Zn	0.4	6010	69	97	25	30	18	0.4	105	103	98
Arsenic	As	0.04	206.2	3.6	2.7	3.3	3.9	3.0	0.1		92	99
Selenium	Se	0.2	270.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	4.5		89	99
Lead	Pb	0.2	239.3	46	52	10	35	4.0	4.2		102	103
Mercury	Hg	0.1	7471	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	4.3		103	100
Calcium	Ca	11	215.1	2100	2100	1600	1600	1500	9.7			103
Potassium	K	17	258.1	860	770	580	930	880	6.1			101

10-Jun-94
Completion Date

Results based on sample dry weight ..
Comments

Chemist

Lab Supervisor

QC Officer

MDL = Method Detection Limit
%R0 = Percent Relative Difference
%R1 = Percent Interference Check Standard
%R2 = Percent Spike Recovery
%R3 = Percent Standard Recovery

CC:

Soil Analysis

Attn: TIELC
Subject: Total Metals
To: EME, Attn. Enily Bonanni

Project: 94-1227
Samples: 44291 Thru 44306
44308 Thru 44309
Sampled: 12 May 1994

Digestion: Hot Plate (3050)

Metal	S. Y. M.	MDL ug/g	EPA Method	EME Sample SB3B3 CSF ug/g	EME Sample SB3C1 CSF ug/g	EME Sample SB4A1 CSF ug/g	EME Sample SB4B1 CSF ug/g	EME Sample SB4C1 CSF ug/g	%R0	%R1	%R2	%R3
Barium	Ba	0.4	6010	40	27	54	41	48	0.1	103	101	97
Beryllium	Be	0.02	6010	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.1	95	103	97
Cadmium	Cd	0.1	6010	< 0.5	< 0.5	6.4	7.6	0.7	0.2	99	100	98
Chromium	Cr	0.6	6010	6.3	5.5	12	10	7.1	1.9	100	105	98
Copper	Cu	0.7	6010	4.8	2.6	27	21	5.3	0.6	103	99	97
Iron	Fe		6010	5300	4200	7100	6600	5600	0.6			96
Magnesium	Mg	15	6010	1200	700	1700	1400	1100	2.6			102
Manganese	Mn	0.9	6010	160	98	170	170	180	0.9	103	104	103
Nickel	Ni	0.8	6010	5.1	4.3	6.9	6.1	4.9	1.4	95	100	98
Silver	Ag	2	6010	< 6	< 6	< 6	< 6	< 6	2.7	102	96	98
Sodium	Na	14	6010	< 42	< 42	52	48	< 42				
Zinc	Zn	0.4	6010	18	12	64	40	22	0.4	105	103	98
Arsenic	As	0.04	206.2	3.1	3.3	3.1	4.3	2.8	0.1		92	99
Selenium	Se	0.2	270.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	4.5		89	99
Lead	Pb	0.2	239.3	3.9	2.4	54	48	4.9	4.2		102	103
Mercury	Hg	0.1	7471	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	4.3		103	100
Calcium	Ca	11	215.1	1400	1600	8700	1600	1400	9.7			103
Potassium	K	17	258.1	830	480	810	1000	890	6.1			101

10-Jun-94
Completion Date

Results based on sample dry weight ..
Comments

Greg Hardcastle
Chemist

Lab Supervisor

QC Officer

MDL = Method Detection Limit
%R0 = Percent Relative Difference
%R1 = Percent Interference Check Standard
%R2 = Percent Spike Recovery
%R3 = Percent Standard Recovery

CC:

Soil Analysis

Attn: TIELC
Subject: Total Metals
To: EME, Attn. Enily Bonanni

Project: 94-1227
Samples: 44291 Thru 44306
44308 Thru 44309
Sampled: 12 May 1994

Digestion: Hot Plate (3050)

Metal	S. Y. M.	MDL ug/g	EPA Method	EME Sample RIMSTATE BLANK1 CSF ug/g	EME Sample 0018-94 ug/g	EME Sample 0019-94 CSF ug/g			%R0	%R1	%R2	%R3
Barium	Ba	0.4	6010	< 1.2	96	86			0.1	103	101	97
Beryllium	Be	0.02	6010	< 0.5	0.9	0.7			0.1	95	103	97
Cadmium	Cd	0.1	6010	< 0.5	1.3	1.0			0.2	99	100	98
Chromium	Cr	0.6	6010	< 1.8	18	13			1.9	100	105	98
Copper	Cu	0.7	6010	< 2.1	16	12			0.6	103	99	97
Iron	Fe		6010	< 0.5	15700	11300			0.6			96
Magnesium	Mg	15	6010	< 45	15600	9500			2.6			102
Manganese	Mn	0.9	6010	< 2.7	340	270			0.9	103	104	103
Nickel	Ni	0.8	6010	< 2.4	21	15			1.4	95	100	98
Silver	Ag	2	6010	< 6	< 6	< 6			2.7	102	96	98
Sodium	Na	14	6010	< 42	150	110						
Zinc	Zn	0.4	6010	< 1.2	58	37			0.4	105	103	98
Arsenic	As	0.04	206.2	< 0.12	5.2	3.3			0.1		92	99
Selenium	Se	0.2	270.3	< 0.5	< 0.5	< 0.5			4.5		89	99
Lead	Pb	0.2	239.3	< 0.5	10	5.6			4.2		102	103
Mercury	Hg	0.1	7471	< 0.3	< 0.3	< 0.3			4.3		103	100
Calcium	Ca	11	215.1	< 33	103000	166000			9.7			103
Potassium	K	17	258.1	< 51	2400	2000			6.1			101

15-Jun-94
Completion Date

Results based on sample dry weight ..
Comments

Chemist

Lab Supervisor

QC Officer

MDL = Method Detection Limit
%R0 = Percent Relative Difference
%R1 = Percent Interference Check Standard
%R2 = Percent Spike Recovery
%R3 = Percent Standard Recovery

CC:

Quality Control Data

Matrix: Soil

Attn: TIELC
Subject: Total Metals
To: EME, Attn. Enily Bonanni

Project: 94-1227
Samples: 44291 Thru 44306
44308 Thru 44309

Sampled: 12 May 1994
QC #: 44291 SB|A|-CSF
Chemist: Greg Hardcastle

Digestion: Hot Plate (3050)

Percent Interference Check Standard:

Metal	S. Y. M.	Cpd. Code	EPA Method	ICS ANL ug/l	ICS INT ug/l	Range ug/l	Actual ug/l	%R
Barium	Ba	BE007	6010	514	11	503	500	103
Beryllium	Be	BE008	6010	474.0	2.3	472	500.0	95
Cadmium	Cd	BE009	6010	985	65	920	1000	99
Chromium	Cr	BE011	6010	499	15	484	500	100
Copper	Cu	BE013	6010	514	28	486	500	103
Iron	Fe	BE014	6010	191050		191050	200000	
Magnesium	Mg	BE016	6010	505460		505460		
Manganese	Mn	BE017	6010	513	41	472	500	103
Nickel	Ni	BE019	6010	952	45	907	1000	95
Silver	Ag	BE022	6010	1019	33	986	1000	102
Sodium	Na	BE023	6010				1000	
Zinc	Zn	BE025	6010	1050	103	947	1000	105
Arsenic	As	BU006	206.2					
Selenium	Se	BU021	270.3					
Lead	Pb	BU015	239.3					
Mercury	Hg	DB018	7471					
Calcium	Ca	CF010	215.1					
Potassium	K	CF020	258.1					

Percent Standard Recovery:

Metal	S. Y. M.	Cpd. Code	EPA Method	Meas. Std. ug/l	Meas. Blank ug/l	Range ug/l	Actual ug/l	%R
Barium	Ba	BE007	6010	494	9	485	500	97
Beryllium	Be	BE008	6010	486.3	0.5	485.8	500.0	97
Cadmium	Cd	BE009	6010	979	2	977	1000	98
Chromium	Cr	BE011	6010	494	2	492	500	98
Copper	Cu	BE013	6010	500	13	487	500	97
Iron	Fe	BE014	6010	191810	9	191801	200000	96
Magnesium	Mg	BE016	6010	509650	75	509575	500000	102
Manganese	Mn	BE017	6010	515	1	514	500	103
Nickel	Ni	BE019	6010	979	4	975	1000	98
Silver	Ag	BE022	6010	994	10	984	1000	98
Sodium	Na	BE023	6010					
Zinc	Zn	BE025	6010	983	2	981	1000	98
Arsenic	As	BU006	206.2	49.7	0.0	49.7	50.0	99
Selenium	Se	BU021	270.3	49.4	0.0	49.4	50.0	99
Lead	Pb	BU015	239.3	51.7	0.0	51.7	50.0	103
Mercury	Hg	DB018	7471	2.53	0.03	2.50	2.50	100
Calcium	Ca	CF010	215.1	17330	900	16430	16000	103
Potassium	K	CF020	258.1	16070	-10	16080	16000	101

Quality Control Data

Matrix: Soil

Attn: TIELC
Subject: Total Metals
To: EME, Attn. Enily Bonanni

Project: 94-1227
Samples: 44291 Thru 44306
EME #s:
Sampled: 12 May 1994

Digestion: Hot Plate (3050)

QC #: 44291 SB1A1-CSF

Percent Spike Recovery:

Metal	S. Y. M.	Cpd. Code	EPA Method	Meas. Spike ug/g	Meas. Sample ug/g	Range ug/g	Actual ug/g	%R
Barium	Ba	BE007	6010	242.18	39.53	202.65	200.00	101
Beryllium	Be	BE008	6010	5.46	0.32	5.14	5.00	103
Cadmium	Cd	BE009	6010	6.75	1.73	5.02	5.00	100
Chromium	Cr	BE011	6010	26.84	5.83	21.01	20.00	105
Copper	Cu	BE013	6010	30.21	5.56	24.65	25.00	99
Iron	Fe	BE014	6010	5391.10	5323.20	67.90	1000.00	
Magnesium	Mg	BE016	6010	1091.30	1004.70	86.60		
Manganese	Mn	BE017	6010	198.35	146.38	51.97	50.00	104
Nickel	Ni	BE019	6010	55.24	5.12	50.12	50.00	100
Silver	Ag	BE022	6010	5.44	0.64	4.80	5.00	96
Sodium	Na	BE023	6010	147.38	138.54	8.84		
Zinc	Zn	BE025	6010	70.00	18.52	51.48	50.00	103
Arsenic	As	BU006	206.2	4.74	2.45	2.29	2.50	92
Selenium	Se	BU021	270.3	2.22	0.00	2.22	2.50	89
Lead	Pb	BU015	239.3	6.51	3.96	2.55	2.50	102
Mercury	Hg	DB018	7471	1.22	-0.08	1.29	1.25	103
Calcium	Ca	CF010	215.1		1664			
Potassium	K	CF020	258.1		840			

Percent Relative Difference:

Metal	S. Y. M.	Cpd. Code	EPA Method	Meas. Spike ug/g	Meas. DSpike ug/g	ABS Range ug/g	Soil Blank ug/g	%R
Barium	Ba	BE007	6010	242.18	241.85	0.33	0.21	0.1
Beryllium	Be	BE008	6010	5.46	5.45	0.01	0.04	0.1
Cadmium	Cd	BE009	6010	6.75	6.76	0.01	0.10	0.2
Chromium	Cr	BE011	6010	26.84	26.34	0.50	-0.34	1.9
Copper	Cu	BE013	6010	30.21	30.02	0.19	0.87	0.6
Iron	Fe	BE014	6010	5391.10	5360.00	- 31.10	4.11	0.6
Magnesium	Mg	BE016	6010	1091.30	1063.40	27.90	12.78	2.6
Manganese	Mn	BE017	6010	198.35	196.54	1.81	0.12	0.9
Nickel	Ni	BE019	6010	55.24	54.47	0.77	0.16	1.4
Silver	Ag	BE022	6010	5.44	5.31	0.14	0.28	2.7
Sodium	Na	BE023	6010	147.38	157.02	9.64	106.82	
Zinc	Zn	BE025	6010	70.00	69.70	0.30	0.62	0.4
Arsenic	As	BU006	206.2	4.74	4.74	0.00	-0.06	0.1
Selenium	Se	BU021	270.3	2.22	2.33	0.10	0.00	4.5
Lead	Pb	BU015	239.3	6.51	6.26	0.25	0.49	4.2
Mercury	Hg	DB018	7471	1.22	1.17	0.05	0.02	4.3
Calcium	Ca	CF010	215.1	1664	1518	146	86	9.7
Potassium	K	CF020	258.1	840	790	50	1	6.1

Greg Hardcastle